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XXXVI.—*Descriptions of New Pyralidæ of the Subfamily Pyraustinae.* By SIR GEORGE F. HAMPSON, Bart., F.Z.S., &c.

[Concluded from p. 196.]

Genus PRONEA will stand as	Type.
<i>Hapalia</i> , Hübn. Verz. p. 355 (1827)	<i>fulvata</i> .

(14) *Hapalia bifasciata*, sp. n.

Antennæ of male laminate with ridge of scales above; fore wing with depressed streaks beyond the cell above and below vein 6.

Head and thorax pale red-brown; abdomen whitish with diffused brown bands except at base leaving whitish segmental lines; frons with white lines at sides; palpi red-brown, white at base; pectus, legs, and ventral surface of abdomen white tinged with ochreous brown, the fore tibiae with dark brown band at extremity. Fore wing whitish tinged with red-brown, the costal and terminal areas broadly suffused with red-brown and the latter irrorated with darker brown, the costal edge dark brown to the postmedial line, then whitish with two minute dark spots on it; antemedial line red-brown, oblique to submedian fold and incurved below vein 1; a brown point in the cell towards extremity and obliquely curved discoidal striga; the depressed streaks beyond the cell whitish; postmedial line dark brown, slightly incurved below costa, then excurved and minutely waved to below vein 3 where it is retracted to below end of cell, excurved below submedian fold; a terminal series of minute dark spots, rather lar-shaped below vein 4; cilia dark brown, chequered with whitish at

tips. Hind wing white, the inner area tinged with red-brown, the terminal area suffused with red-brown to vein 2; a blackish point at lower angle of cell; postmedial line brown, excurved from discal fold to vein 2 where it terminates; a terminal series of minute dark spots to vein 1; cilia red-brown with white tips to submedian fold, then wholly white; the underside white with the costal area tinged with red-brown, black points at the angles of cell, the postmedial line black, punctiform, and extending to vein 1.

Hab. PERT, Carabaya, Oconeque (*Ockenden*), 1 ♂ type. *Exp.* 20 mm.

(1i) *Hapalia lobibasalis*, sp. n.

Antennæ of male laminate with ridge of scales above; hind wing with the costa lobed near base.

♂. Head and thorax whitish suffused with red-brown; abdomen white slightly suffused with red-brown; palpi dark red-brown, white in front to extremity of 2nd joint; pectus, legs, and ventral surface of abdomen white slightly suffused with red-brown. Fore wing whitish suffused with red-brown, the costa darker brown; a faint oblique sinuous brown antemedial line; postmedial line brown, waved, excurved from vein 6 to 4, then oblique; a terminal series of minute black-brown spots to vein 2; cilia with a brown line at middle. Hind wing white tinged with red-brown; a terminal series of minute black-brown spots to vein 2; the underside with indistinct curved brown postmedial line from costa to vein 2.

Hab. ECUADOR, Zamora (*Abbé Gaujon*), 1 ♂ type. *Exp.* 20 mm.

(4a) *Hapalia magnifovealis*, sp. n.

♂. Head, thorax, and abdomen orange-yellow; frons with white lines at sides; palpi white at base; pectus, legs, and ventral surface of abdomen white tinged with yellow, the fore tibiae orange-yellow in front. Fore wing orange-yellow, the costal area more fulvous orange, the terminal area rather narrowly suffused with red-brown and glossed with silvery blue from below apex to submedian fold; antemedial line indistinct, orange, very oblique; the fovea beyond the cell large, white with a brownish white boss in it; postmedial line orange, excurved to vein 3, then retracted to below end of cell and oblique to inner margin; a punctiform red-brown terminal line from below apex to submedian fold slightly defined on inner side by orange; cilia fulvous orange, whitish at tips. Hind wing orange-yellow, the cell and costal area to near apex and the inner area white; an orange postmedial line from vein 5 to submedian fold; the terminal area narrowly suffused with red-brown and glossed with silvery blue from below apex to

vein 2; a dark brown terminal line from apex to submedian fold; cilia orange-yellow with a deeper orange line through them and some whitish at tips to submedian fold, then white tinged with yellow.

Hab. PERU, Yahuarimayo, 1 ♂ type. *Exp.* 18 mm.

(15b) *Hapalia endotrichialis*, sp. n.

♂. Head, thorax, and abdomen orange-yellow; palpi with the basal joint white; pectus and ventral surface of abdomen at base with some white. Fore wing orange-yellow; a faint brownish antemedial line, oblique to median nervure, then erect; minute reddish brown spots in the cell towards extremity and on discocellulars; postmedial line reddish brown, excurved and slightly waved to below vein 3, then retracted to below end of cell and waved to inner margin; a fine dark brown terminal line. Hind wing orange-yellow; postmedial line brown, arising at vein 6, oblique to vein 2, then slightly incurved and ending at submedian fold; a fine dark brown terminal line except towards terminus.

Hab. FORMOSA (Wileman), 1 ♂ type. *Exp.* 28 mm.

(24a) *Hapalia glaucostigmalis*, sp. n.

♀. Head and thorax rufous; abdomen greyish suffused with red-brown; antennæ red-brown; palpi red-brown, white below to near extremity of 2nd joint; pectus, legs, and ventral surface of abdomen white mixed with red-brown, the fore legs red-brown, white on inner side. Fore wing rufous, the inner area paler; small obliquely placed dark brown spots in the cell, in submedian fold, and on inner margin; a small grey-white spot in middle of cell and discoidal lunule defined by dark brown; postmedial line dark brown, excurved from below costa to vein 4, then oblique and slightly sinuous; a brown subterminal shade. Hind wing ochreous white; an indistinct curved brown postmedial line; a slight terminal brown shade from apex to vein 2; cilia whitish.

Hab. COLOMBIA, Rio Derg, 1 ♀ type. *Exp.* 24 mm.

(34b) *Hapalia nigristriatula*, sp. n.

♂. Head, thorax, and abdomen white tinged with red-brown, the last darker towards extremity; palpi suffused with red-brown below, white above; pectus, legs, and ventral surface of abdomen white tinged with red-brown. Fore wing white tinged with red-brown, the inner half whiter to beyond middle, the terminal area broadly suffused with red-brown; a rather diffused red-brown fascia through the cell; the veins beyond the cell slightly streaked with red-brown and veins 7, 6 streaked with black defined below by white streaks towards terminus; five black points on terminal

part of costa which is white; some blackish scales on lower discocellular; a terminal series of minute blackish points on an ochreous white line; cilia dark brown, chequered with white at tips. Hind wing white, the termen narrowly suffused with red-brown to submedian fold; a terminal series of black points to vein 2; cilia white.

Hab. COLOMBIA, San Antonio (*Palmer*), 1 ♂ type. *Exp.* 22 mm.

(35 a) *Hapalia tristigmalis*, sp. n.

Head white tinged with cupreous brown; thorax pale cupreous brown; abdomen whitish banded with dark brown except towards base; antennae dark brown ringed with white; frons with white lines at sides; palpi dark brown, white in front towards base and with some white at tips; pectus, legs, and ventral surface of abdomen white mixed with some black-brown, the fore tibiae black-brown, the tarsi ringed with black. Fore wing whitish suffused with cupreous brown with a slight purplish gloss, the costal edge black with alternating white marks towards apex; a curved black antemedial line, defined on inner side by white and with a small triangular creamy white spot beyond it below the costa; a small conical creamy white spot defined by black except above in upper part of cell towards extremity; a sinuous black line defined on outer side by white from lower angle of cell to inner margin; a creamy white postmedial patch defined by black from costa to vein 5, its outer edge angled outwards at vein 6, then reduced to a bar; cilia creamy white, chequered with brown at base and with brown line at middle. Hind wing white faintly tinged with brown; slight dark spots in upper part of cell towards extremity and at upper angle; a faint brown postmedial line, incurved between discal and submedian folds; the terminal area suffused with pale purplish brown except towards tornus; cilia chequered with brown at base and with brown line at middle to vein 2; the underside with black spots in the cell near base and before and at end of cell, a postmedial series of black spots, incurved at discal fold and excurved above inner margin.

Hab. COLOMBIA, Sierra del Lilane (*H. H. Smith*), 4 ♂, 2 ♀ type, Bonda (*H. H. Smith*), 1 ♂, 1 ♀. *Exp.* 18 mm.

(36 a) *Hapalia distictalis*, sp. n.

♀. Head, thorax, and abdomen dark cupreous brown; palpi white below to near tips; pectus, legs, and base of ventral surface of abdomen with some white, the tarsi creamy white. Fore wing dark cupreous brown; a faint oblique dark antemedial line; a small triangular creamy white spot defined by blackish except above in upper part of cell towards extremity; a faint sinuous dark line from lower angle of cell to inner margin; a postmedial

creamy white bar defined by blackish between veins 8 and 4, its outer edge slightly angled outwards at veins 6 and 5; cilia white at tips with some brown scales mixed. • Hind wing dark cupreous brown; a faint dark discoidal bar; a faint slightly sinuous dark postmedial line from vein 4 to tornus; cilia white at tips; the underside with wavy dark postmedial line, incurved at discal fold; both wings with white line at base of cilia.

Hab. COLOMBIA, Don Amo (*M. H. Smith*), 1 ♀ type, Bonda (*H. H. Smith*), 1 ♀. *Exp.* 20-22 mm.

(36*d*) *Hapalia flavipartalis*, sp. n.

♂. Head and thorax yellow mixed with red-brown, the frons whitish, the antennæ whitish tinged with brown; palpi red-brown, white below towards base and with some whitish at tips; abdomen white mixed with red-brown; pectus, legs, and ventral surface of abdomen white, the fore tibiae yellowish, the mid femora with minute brown spot at extremity. Fore wing with the basal half orange-yellow, the base suffused with red-brown, the terminal area red-brown; an oblique sinuous brown antemedial line; a brown annulus in middle of cell; a curved brown medial line confluent with the inner side of a reddish brown discoidal spot defined by dark brown and with dark brown striga in centre, the spot confluent on outer side with the brown terminal area; a conical orange-yellow postmedial patch from costa to vein 5, defined by dark brown and its inner edge confluent with the yellow basal area at costa; cilia white at tips from below apex to vein 4 and with some white at submedian interspace. Hind wing white, tinged with red-brown except the cell and costal area to beyond middle; the cilia white; the underside white, the terminal area tinged with brown to vein 2.

Hab. COLOMBIA, Chokor, R. Siatu, 1 ♂ type. *Exp.* 20 mm.

(38*b*) *Hapalia umbriferalis*, sp. n.

♂. Head and thorax rufous, some white on vertex of head and on metathorax behind; abdomen dark red-brown with white segmental lines; palpi with some white at base; pectus, legs, and ventral surface of abdomen white mixed with rufous, the femora, tibiae, and tarsi banded with black. Fore wing rufous suffused with dark brown, the costal area bright rufous except towards base, with three small black spots on the costa towards apex; antemedial line black-brown, angled outwards below costa, excurved below the cell and angled inwards above inner margin, defined on inner side by whitish below the cell; a small black annulus in upper part of middle of cell and discoidal figure-of-eight shaped mark, its upper and lower parts filled in with rufous, the rufous from costa extending into the cell before it; postmedial line black-brown defined

on outer side by whitish, strong and obliquely downcurved to vein 6, then excurved and minutely dentate to vein 2 where it is retracted to below angle of cell and bent outwards below submedian fold; a terminal series of minute black spots with whitish striae between them; cilia dark red-brown, whitish at tips. Hind wing red-brown, rather darker at termen on which there is a series of minute blackish points; cilia white at tips; the underside pale rufous slightly irrorated with dark brown, a minute black spot in middle of cell and small spots at the angles, postmedial line black, maculate, excurved to below vein 3, then retracted and ending in a small spot below vein 2, a terminal series of black points to vein 2 and some dark brown at submedian fold.

Hab. PERU, San Domingo (*Ockenden*), 1 ♂ type. *Ecp.* 22 mm.

(50 b) *Hapalia conisanalis*, sp. n.

♀. Head, thorax, and abdomen red-brown mixed with some greyish, the last with white segmental lines except towards base; frons with white lines at sides; palpi rufous, white at base; pectus, legs, and ventral surface of abdomen white tinged with red-brown. Fore wing whitish suffused with red-brown and thickly irrorated with dark brown, the terminal area rather more strongly suffused with red-brown; antemedial line rather diffused, brown, slightly wavy; a minute brown spot in upper part of cell towards extremity and discoidal striga; a brown shade beyond the cell from costa to vein 2; postmedial line brown, minutely wavy, excurved from below costa to vein 3, then retracted to below end of cell; a rather punctiform dark brown terminal line to submedian fold; cilia with a brown line through them, the tips whitish. Hind wing whitish suffused with red-brown and irrorated with dark brown; postmedial line indistinct, brown, slightly excurved from discal fold to vein 2 where it terminates; a rather punctiform dark terminal line to 2; cilia with a brownish line near base and the tips whitish to vein 2, then wholly whitish.

Hab. BR. C. AFRICA, Shiré Valley, Mwanza R. (*Neave*), 1 ♀ type, Mt. Mlangi (*Neave*), 1 ♀. *Ecp.* 20 mm.

(101 a) *Hapalia lunilinealis*, sp. n.

♂. Head, thorax, and abdomen rufous, the genital tufts white; palpi below towards base and pectus in front white; tarsi white tinged with rufous. Fore wing rufous; antemedial line indistinct, brown, oblique, and slightly saucers to vein 1, then incurved; a slight dark discoidal band; postmedial line formed by minute dark lunules, excurved from below costa to below vein 3, then retracted to below end of cell and erect to inner margin; a brown terminal line; cilia whitish tinged with rufous and with brown line near base. Hind wing whitish tinged with rufous; a curved

postmedial series of brown points on veins 5 to 2; a red-brown terminal line and line near base of cilia to vein 2.

Hab. ECUADOR, Zamora (*Abbé Gaujon*), 6 ♂ type. *Exp.* 28 mm.

(104e) *Hapalia rubritactalis*, sp. n.

♂. Head, thorax, and abdomen ochreous yellow tinged with rufous; palpi rufous, the basal joint white; pectus, legs, and ventral surface of abdomen white, the fore legs tinged with rufous; a faint diffused brownish antemedial line from subcostal nervure to inner margin; a small brownish spot in upper part of cell towards extremity and discoidal bar; postmedial line indistinct, diffused, brownish, excurved to vein 3, then retracted to below angle of cell and erect to inner margin, slightly defined on outer side by yellow; the costal area yellower towards apex. Hind wing ochreous yellow suffused with rufous, the inner margin whitish; postmedial line brownish defined on outer side by diffused yellow, erect to vein 2 towards termen, then retracted and again erect to termen above torus; the terminal area suffused with rufous to vein 1, leaving some yellow on termen; cilia white.

Hab. "GERM. E. AFRICA," Ruaha R., Kilossa Rd. (*Neave*), 1 ♂ type. *Exp.* 20 mm.

(127b) *Hapalia carbonifusalis*, sp. n.

Head fuscous brown mixed with some ochreous; thorax fuscous brown; abdomen greyish suffused with fuscous brown; antennae fuscous brown; palpi black-brown with some white below; pectus, legs, and ventral surface of abdomen grey suffused with fuscous brown, the fore tibiae with black band at extremity. Fore wing fuscous brown mixed with grey-white; antemedial line blackish, oblique to median nervure, then erect; a slight white discoidal lunule defined by fuscous brown; postmedial line rather diffused blackish, slightly excurved at vein 7, and bent outwards between veins 5 and 3, then retracted to below end of cell and erect to inner margin; a blackish terminal line; cilia chequered with blackish at tips. Hind wing fuscous brown tinged with grey.

Hab. BR. C. AFRICA, Mt. Mlanje (*Neave*), 3 ♂, 3 ♀ type. *Exp.* 16-20 mm.

(127d) *Hapalia conistodalis*, sp. n.

♂. Head, thorax, and abdomen dark brown mixed with grey-white; antennae dark brown; palpi black-brown; fore tibiae at extremity and the tarsi banded black and white. Fore wing thickly imbricated with dark brown and grey-white; antemedial line black, slightly wavy, oblique to submedian fold, then erect; a small rather diffused blackish spot in middle of cell; a small white

discoidal lunule irrorated with brown and defined at sides by black; postmedial line black, excurved at vein 7 and between veins 5 and 3, then retracted to below angle of cell and excurved below submedian fold; a terminal series of small black spots; cilia white mixed with brown. Hind wing grey-brown irrorated with fuscous; a dark terminal line except towards tornus; cilia white mixed with brown and with brown line at middle.

Hab. N. NIGERIA, Zingeru (*Simpson*), 1 ♂ type, Minna (*Macfie*), 1 ♂. *Exp.* 20 mm.

(127c) *Hapalia pulcherrulenta*, sp. n.

♂. Head and thorax reddish brown mixed with grey-white; abdomen whitish tinged with red-brown; frons with white lines at sides; palpi red-brown, white at base; pectus, legs, and ventral surface of abdomen white, the fore legs suffused with red-brown. Fore wing reddish brown mixed with some white; a brown antemedial line in submedian interspace, angled outwards to a slight spot at submedian fold; slight brown spots at middle of cell and on discocellulars; postmedial line formed by small brown spots, defined on outer side by slight white marks and with some white before it at discal fold, excurved from discal fold to vein 3, then incurved; a terminal series of minute blackish spots. Hind wing pale reddish brown; a terminal series of black points to vein 2; cilia white tinged with red-brown. Underside of fore wing grey-brown, the costal area white to near apex; hind wing white.

Hab. CEYLON, Ambalangoda (*Mackwood, Green, Pole*), 3 ♂ type. *Exp.* 20-22 mm.

(128a) *Hapalia polistalalis*, sp. n.

♀. Head, thorax, and abdomen grey-brown with a leaden gloss, the last with white segmental lines; palpi white below; pectus, legs, and ventral surface of abdomen white tinged with brown. Fore wing grey-brown with a leaden gloss; a faint erect brown antemedial line; a faint dark discoidal bar; postmedial line rather diffused dark brown, very slightly waved, excurved from costa to below vein 3, then retracted to below angle of cell and erect to inner margin; cilia white tinged with brown, with dark line near base and slight spots near tips. Hind wing grey-brown with a leaden gloss, the cilia white with a dark line near base; the underside white mixed with brown, obliquely placed small black spots at the angles of cell, a curved punctiform dark postmedial line, and terminal series of black points.

Hab. FORMOSA, Kaushinci (*Willemau*), 1 ♀ type. *Exp.* 16 mm.

(1a) *Pyrausta pectinalis*, sp. n.

Antennæ of male bipectinate with long fine branches to two-thirds length.

♂. Head and thorax pale red-brown; abdomen whitish suffused with red-brown; antennæ ringed with black towards base; palpi black-brown, white below to near extremity of 2nd joint; pectus, legs, and ventral surface of abdomen white, the fore coxæ dark brown towards base, the femora and tibiae suffused with red-brown. Fore wing glossy red-brown; a faint dark discoidal bar; cilia with pale line at base and some whitish at tips. Hind wing glossy red-brown; a faint dark mark at upper angle of cell; cilia with some whitish at tips; the underside whitish tinged with red-brown, a faint rather diffused brown postmedial line from costa to vein 4.

Hab. PERU, Chanchamayo, 1 ♂ type. *Esp.* 26 mm.

(31b) *Pyrausta fulciflavalis*, sp. n.

♀. Head whitish tinged with fulvous; thorax fulvous; abdomen whitish suffused with fulvous; palpi rufous, white below; throat white; pectus, legs, and ventral surface of abdomen pale rufous, the mid. tibiae on outer side and all the tarsi white. Fore wing fulvous, the costal edge brown to middle, then white; antemedial line indistinct, brown, oblique and waved to above vein 1 and angled inwards above inner margin; a brown point in upper part of middle of cell and curved discoidal striga; a diffused brown spot beyond lower angle of cell; postmedial line brown, dentate, oblique to vein 5, then inwardly oblique and incurved above inner margin; cilia rufous. Hind wing semihyaline whitish tinged with orange-yellow, the terminal area orange-yellow to submedian fold, angled inwards at vein 2 to below end of cell; a curved series of slight red-brown lunules on veins 4, 3, 2; a red-brown terminal line and the cilia rufous from below apex to vein 2.

Hab. ARGENTINA, Puerto Aguirre (*Bettoa*), 1 ♀ type. *Esp.* 32 mm.

(38a) *Pyrausta violascens*, sp. n.

♀. Head and tegulae fulvous; thorax very pale purplish; abdomen white with a violaceous grey tinge; palpi rufous, white below towards base; pectus, legs, and ventral surface of abdomen white faintly tinged with brown. Fore wing very pale purplish, the costal area fulvous to beyond middle; a faint oblique brownish antemedial line; a small fulvous spot in the cell towards extremity and discoidal bar; a faint brownish postmedial line, excurved and slightly waved between veins 5 and 2, then retracted to below angle of cell and oblique to inner margin; cilia whitish. Hind wing very pale purplish, the inner area whitish; a faint brownish

postmedial line, excurved and slightly waved between veins 5 and 2, where it terminates; cilia whitish.

Hab. GOLD COAST, Kumasi (*Sanders*), 1 ♀ type. *Exp.* 28 mm.

(55 a) *Pyrausta fulvilinealis*, sp. n.

♂. Head and thorax white mixed with some fulvous; abdomen white; antennae pale fulvous; frons with black bars at sides; palpi fulvous mixed with some blackish, white below towards base; pectus, legs, and ventral surface of abdomen white, the fore femora red-brown above, the tibiae black on inner side and the tarsi ringed with black. Fore wing creamy white, the costal area tinged with fulvous and the costal edge black-brown to end of cell; antemedial line fulvous, oblique, slightly excurved below costa; a small fulvous spot in the cell towards extremity and discoidal lunule defined by fulvous; postmedial line fulvous, interrupted, angled outwards below costa, then incurved to vein 5 where it is interrupted, oblique to vein 2, then represented by a bar below angle of cell and oblique line from vein 2 to inner margin; subterminal line fulvous, rather interrupted, oblique to vein 5, excurved between veins 5 and 4, and angled inwards at vein 2 to near the postmedial line; the costa fulvous towards apex; a fine fulvous terminal line. Hind wing creamy white; a fulvous discoidal bar; postmedial line fulvous, slightly bent outwards between veins 5 and 2, then retracted and obsolete to lower angle of cell, then oblique to inner margin; subterminal line fulvous, slightly excurved between veins 6 and 2 and ending at tornus; a fine fulvous terminal line and slight line near base of cilia.

Hab. UGANDA, Mbale-Kumi Rd. (*Neave*), 1 ♂ type. *Exp.* 32 mm.

(58 a) *Pyrausta distictalis*, sp. n.

♂. Head and thorax whitish suffused with fulvous; abdomen creamy white faintly tinged with rufous; pectus, legs, and ventral surface of abdomen creamy white, the fore legs tinged with rufous, the femora, tibiae, and base of tarsi blackish above. Fore wing very pale yellow, the base suffused with fulvous, the costal edge blackish; a minute black spot in the cell towards extremity and another at lower angle. Hind wing uniform very pale yellow. Underside of fore wing tinged with brown except on inner area.

Hab. BR. C. AFRICA, Mt. Mlanje (*Neave*), 2 ♂ type. *Exp.* 24 mm.

(61 c) *Pyrausta leucoplacalis*, sp. n.

♂. Head and thorax cupreous brown with some white on meta-thorax; abdomen white indistinctly banded with cupreous brown; antennae whitish tinged with cupreous brown; sides of frons and

palpi black-brown, the latter white below; pectus, legs, and ventral surface of abdomen white, the fore femora and tibiae suffused with cupreous brown and the mid tibiae with cupreous brown spots at extremity. Fore wing cupreous brown, an ochreous white fascia below costa from the antemedial to beyond the postmedial line; antemedial line dark brown defined on inner side by ochreous white, arising at median nervure and slightly angled outwards above inner margin, an ochreous white patch beyond it at inner margin; a small semihyaline white spot in middle of cell and discoidal spot defined by dark brown except above where it is confluent with the subcostal fascia; postmedial line dark brown, waved and defined on outer side by a waved ochreous white band, with a semihyaline white patch before it beyond the cell and spots below veins 4, 3, 2, excurved from costa to vein 4, then oblique; a narrow terminal ochreous white band and a terminal series of small brown spots to vein 2; cilia white. Hind wing semihyaline white to the postmedial line, then ochreous white; small black-brown subbasal spots below the cell and above inner margin; a black discoidal bar; postmedial line black-brown, arising below costa, curved and waved between veins 5 and 2, where it is retracted, then sinuous to inner margin; a wedge-shaped cupreous brown subterminal patch with waved edges from below costa to vein 3, then a rather diffused interrupted sinuous line; a terminal series of small brown spots to vein 2; cilia white.

Hol. COLOMBIA, Sierra del Libane (*H. H. Smith*), 2 ♂ type.
Exp. 26 mm.

(103 b) *Pyrausta xanthyalialis*, sp. n.

♀. Head and thorax pale yellow tinged with rufous; abdomen pale yellow; frons with blackish bars at sides; palpi black-brown above and white at base; pectus, legs, and ventral surface of abdomen white, the legs tinged with yellow, the fore legs with dark brown mark at femoro-tibial joint. Fore wing pale yellow, thinly scaled, the costal area tinged with rufous and the costal edge dark brown to the postmedial line; antemedial line brown, slightly curved; a dark brown discoidal bundle; postmedial line dark brown, curved inwards and obsolescent between veins 5 and 2 and slightly excurved above inner margin; a terminal series of brown strigæ from apex to vein 4. Hind wing pale yellow, thinly scaled; a brown discoidal striga; postmedial line brown, curved inwards and obsolescent between veins 5 and 2.

Hol. ECUADOR, R. Pastaza, El Tupo (*Palmer*), 3 ♂ type.
Exp. 24 mm.

(106 b) *Pyrausta miccodontalis*, sp. n.

♀. Head and thorax whitish tinged with red-brown; abdomen white faintly tinged with brown; palpi red-brown, white below;

pectus, legs, and ventral surface of abdomen white, the fore legs and mid femora streaked with brown. Fore wing whitish suffused with pale reddish brown and slightly irrorated with fuscous; a curved blackish antemedial line; a black discoidal bar; postmedial line blackish, curved and minutely dentate to vein 2 where it is retracted to below end of cell and oblique to inner margin; a faint rather diffused dentate brown subterminal line; a fine black terminal line; cilia whitish at tips. Hind wing whitish suffused with pale reddish brown and irrorated with fuscous, the inner margin white; an oblique blackish discoidal bar; postmedial line rather diffused blackish, waved to vein 2, then retracted to below angle of cell and ending at tornus; a blackish subterminal shade with slightly waved outer edge to vein 2, then oblique; a fine black terminal line; cilia with dark line near base, the tips white.

Hab. BR. E. AFRICA, N. Kavirondo, Maramas Distr., Itala (Neave), 1 ♀ type. *Esp.* 20 mm.

(107 b) *Pyrausta pulvereimbralis*, sp. n.

♂. Head and thorax ochreous tinged with rufous; abdomen whitish suffused with red-brown and with white segmental lines towards extremity, the anal tuft tinged with rufous; palpi white below towards base; pectus, legs, and ventral surface of abdomen white slightly tinged with brown. Fore wing ochreous tinged with rufous, irrorated with brown from before the antemedial to beyond the postmedial line except on costal area, the medial area whitish except towards costa; antemedial line fulvous yellow with a brownish line on it, curved; a small brown spot defined by fulvous yellow in upper part of cell towards extremity and brown discoidal bar defined by fulvous yellow; an oblique brown shade from beyond upper angle of cell to inner margin beyond the postmedial line, which is fulvous yellow with a brownish line on it, excurved from vein 7 to 5, then rather oblique to vein 3, then bent inwards to lower angle of cell, then again rather oblique and bent outwards to inner margin, a brown shade with waved outer edge beyond it from below costa to vein 3; a curved rather diffused fulvous yellow subterminal line, arising below the costa; cilia white with a faint ochreous brown line at middle. Hind wing white; a brownish postmedial line, bent inwards at vein 2, then oblique to tornus; a brownish subterminal line.

Hab. ABYSSINIA, Diré Dabou (Kristensen), 1 ♂ type. *Esp.* 24 mm.

(107 c) *Pyrausta fulvifinctalis*, sp. n.

♀. Head and thorax fulvous; abdomen red-brown with fine white segmental lines on medial segments; antennae dark brown; frons with white lines at sides; palpi yellow with a fulvous tinge; pectus, legs, and ventral surface of abdomen white tinged with

rufous. Fore wing red-brown, suffused with fulvous to middle and on costal area to apex; a faint dark antemedial line, oblique to submedian fold, then inwardly oblique; postmedial line dark, oblique towards costa, then excurved and minutely waved to vein 3, slightly angled inwards at vein 2 and erect to inner margin; a fine dark brown terminal line; cilia with a fine pale line at base followed by a brown line. Hind wing red-brown; an indistinct curved dark postmedial line; a dark brown terminal line; cilia with a fine pale line at base followed by a brown line; the underside paler, the costal area ochreous white to the postmedial line.

Hab. ECUADOR, Zamora (*Abbé Gaujon*), 1 ♀ type. *Exp.* 20 mm.

(108b) *Pyrausta xanthocephalis*, sp. n.

♂. Head yellow tinged with rufous; antennæ, thorax, and abdomen glossy fuscous brown; palpi dark brown, yellowish above and white below to near extremity of 2nd joint; pectus, legs, and ventral surface of abdomen white tinged with brown. Fore wing glossy fuscous brown slightly irrorated with whitish; a diffused whitish spot in end of cell; postmedial line whitish, somewhat dilated at costa, incurved at discal fold, excurved to vein 3, then retracted to below angle of cell and excurved below submedian fold; a terminal series of slight black points and fine white line at base of cilia. Hind wing pale brown with a slight cupreous tinge; cilia with a fine white line at base followed by a brown line, the tips with some whitish.

Hab. MEXICO, Guerrero (*H. H. Smith*), 2 ♂ type, Godman-Salvin Coll., Guadalajara (*Goldsmith*), 1 ♂. *Exp.* 20 mm.

(113b) *Pyrausta infuscalis*, sp. n.

♀. Head, thorax, and abdomen dark reddish brown; palpi dark brown, white below to near extremity of 2nd joint; pectus, legs, and ventral surface of abdomen white tinged with brown. Fore wing dark reddish brown slightly irrorated with whitish; a faint dark antemedial line, oblique towards costa and defined on outer side by whitish below the cell; postmedial line indistinct, rather diffused dark brown slightly defined on outer side by whitish, somewhat angled outwards below costa, incurved at discal fold, excurved to vein 2, then retracted to below angle of cell and erect to inner margin; a terminal series of small rather triangular blackish spots; cilia whitish mixed with brown. Hind wing pale reddish brown, the costal area whitish to beyond middle; cilia whitish with a brown line near base; the underside whitish mixed with brown, a dark postmedial line excurved below vein 7 and between veins 5 and 2.

Hab. SIKHIM (*Möller*), 1 ♀ type. *Exp.* 20 mm.

(139 b) Pyrausta auricinctalis, sp. n.

♂. Head and tegulae orange-yellow, the latter with some dark brown dorsally; thorax dark brown mixed with yellow; abdomen dark purplish brown, the two terminal segments orange-yellow, the genital tufts paler yellow; antennae brown, orange-yellow towards base; pectus and legs yellowish tinged with brown. Fore wing dark purple-brown; the base orange-yellow; the costal edge orange-yellow to a medial orange-yellow band from costa to above vein 1, rounded below, the costa beyond it orange-yellow; an orange-yellow terminal band with curved inner edge; cilia orange-yellow at base, whitish at tips. Hind wing dark purplish brown; an orange-yellow terminal band, the inner edge slightly incurved at submedian fold; cilia orange-yellow, whitish at tips.

Hab. BR. E. AFRICA, N. Kavirondo, Maramas Distr., Itak (Neave), 1 ♂ type. *Exp.* 18 mm.

(8 a) Pegostoma subterminalis, sp. n.

♂. Head, thorax, and abdomen white mixed with reddish brown; antennae brown; palpi dark brown, white below; pectus, legs, and ventral surface of abdomen white mixed with dark brown. Fore wing white, the basal area and costal area to apex tinged with red-brown; a red-brown subterminal band, its inner edge incurved below vein 5 and slightly angled outwards above vein 1; cilia pale red-brown. Hind wing pale red-brown. Underside white suffused with red-brown.

Hab. ORANGE R. COLONY, Bloemfontein (*Eckersley*), 1 ♂ type. *Exp.* 16 mm

(4 a) Noctuella anartalis, sp. n.

♀. Head, thorax, and abdomen dark brown mixed with some white; antennae dark brown; palpi dark brown, the basal joint white; pectus, legs, and ventral surface of abdomen white mixed with dark brown. Fore wing red-brown mixed with white and slightly irrorated with dark brown; an oblique black-brown line defined on inner side by white from upper part of cell towards extremity to inner margin; some diffused blackish beyond upper angle of cell; postmedial line white defined on inner side by a line slightly dentate black-brown line, incurved below vein 4 and slightly angled outwards below submedian fold; a diffused sinuous whitish subterminal band indented by a wedge-shaped dark mark from termen above vein 1; cilia white with a brown line near base and some brown at tips. Hind wing orange-yellow, the costal area white; some dark brown irroration along vein 1; a narrow red-brown terminal band, ending in a point at submedian fold, its inner edge slightly waved; cilia brown, white at tips. Underside

of fore wing white, tinged with yellow on disk, the costal area irrorated with red-brown; hind wing orange-yellow, the costal area white, irrorated with red-brown except towards base, the terminal band formed by red-brown irroration.

Hab. E. TURKESTAN (*Acinoff*), 1 ♀ type. *Exp.* 22 mm.

(7a) *Noctuelia josialis*, sp. n.

♂. Head and tegulae orange-yellow, the latter with black-brown patches at tips glossed with blue, with orange-yellow stripes at sides and the patagia with some orange-yellow scales; abdomen black-brown with a cupreous gloss and orange-yellow subdorsal stripes, the genital tufts white; antennae black; frons with black patch; palpi black, the basal joint and base of 2nd joint yellow; femora whitish tinged with brown; ventral surface of abdomen with white stripe except at extremity. Fore wing black-brown with a cupreous gloss; an orange-yellow fascia along median nervure to near termen where its extremity is rounded; an orange-yellow streak on inner margin. Hind wing black-brown with a cupreous gloss; a broad orange-yellow stripe in and below the cell to near termen, extending to inner margin at base and narrowing somewhat with its lower edge oblique beyond the cell.

Hab. VENEZUELA, Esteban Valley, Las Quiguas, 1 ♂ type. *Exp.* 30 millim.

XXXVII.—On the Synonymy of some European *Diplopods* (*Myriapoda*), with Special Reference to Three Leachian Species. By RICHARD S. BAGNALI, F.L.S.

ONE of the drawbacks to students of British Myriapods undoubtedly lies in the unsatisfactory state of the nomenclature. When one remembers that, amongst the Diplopods, there are so many instances of two (or more) species being so closely related as to be practically indistinguishable, except by a dissection and study of the male, one at once realizes how difficult it must be for a discoverer of a species so closely allied to one already known to decide which of the two was the one described by an older naturalist at a time when present-day methods were not used.

A case in point: *Brachyialus pusillus*, a graceful little Julid with a pair of yellowish stripes down the back, was described by Leach from Edinburgh and London more than a hundred years ago. In recent years Verhoeff showed that there were two species, externally alike but abundantly

distinct in the structure of the male gonopods etc., describing one of them as new under the name of *Brachyiulus littoralis*. The dissection of male examples, however, from an abundance of British material proves that all our examples are referable to Verhoeff's species. Surely, by deduction, one must refer the British material to Leach's species, and so sink Verhoeff's name as a synonym. And, further, another name must be found for the *pusillus* of Verhoeff (non Leach).

The present memoir is an attempt to show my deductions as to the true synonymy of three of Leach's species, from which it will be seen that new names will have to be found for *Craspedosoma rawlini*, Verhoeff (non Leach), and *Brachyiulus pusillus*, Verhoeff (non Leach). As existing names (now sunk as synonyms) may be found applicable, I leave this question to more capable hands. I have, however, suggested a new name for *Craspedosoma simile*, Attems (non Verhoeff), the issue in this instance not being complicated by old synonymy.

Of four of Leach's memoirs on Myriapods containing practically the same subject-matter, I have perused the following :—

Leach, W. E. 1814-15. "A Tabular View of the External Characters of Four Classes of Animals, which Linné arranged under Insecta; with the Distribution of the Genera composing Three of these Classes into Orders &c., and Descriptions of several new Genera and Species." In Trans. Linn. Soc. Lond. vol. xi. (1815) pp. 306-400 (Class II. Myriapoda, pp. 376-386).

Leach, W. E. 1817. "The Characters of the Genera of the Class Myriapoda, with Descriptions of some Species." In the 'Zoological Miscellany,' iii. pp. 36-45 (with 10 plates).

The following extract is from the first of these references :—

[p. 379] "Spec. 7. *Julus pusillus*."

"J. Segmento ultimo submucranato, corpore cinerascens nigro aut fusco-brunneo lineis duabus rufescentibus."

"Long. Corp. 5 ad 6 lin."

"Habitat prope Edinburgum sub lapidibus; in Battersea fields, Londinum prope, inter granorum radices."

"Copulatione observavi."

[p. 380]

" β . Corpus rufescens lateribus lineaque longitudinale dorsali fuscis brunneis.

"Dorsum lineis fortioribus exaratis, distantibus rectis subaequalibus. Antennae fuscae articulis dilutis. Pedes lutescentes.

"Gen. 3. CRASPEDOSOMA.†

[Footnote] "† This genus was proposed by my much lamented friend Richard Rawlin, Esq., who discovered the first species.

"Corpus lineare, depressum, segmentis lateraliter compressis, marginatis. Anterior articulo secundo tertio brevior.

"* Segmentis lateribus medio prominentis.

"Spec. 1. *Craspedosoma Rawlinii*.

"C. dorso fusco-brunneo lineis quatuor panctorum albidum, ventre pedibusque rufescentibus.

"Long. Corp. 7 lin.

"Habitat inter muscos et sub lapideis peque. Edinburgum vulgarissima. Detexit R. Rawlin ejus nomen gr̃it.

"** Segmentis lateribus postice productis.

"Spec. 2. *Craspa losoma pedalisimoides*.

"C. dorso rufo-griseo, ventre pallido, pedibus rufescentibus basi pallidis, angulo segmentorum postico setigeris.

"Habitat in Dammonia peque Plymouth, sub lapideis passim. Detexit Dom Montagu.

"Corpus rufo-griseum, pedibus pallidioribus. Dorsum lineis longitudinaliter impressum. Segmenta valde prominentia angulo antico retundato; postico retrorsum producto, setifero setâ conicâ albâ. Facies saturate rufo-grisea. Oculi albi. Antennae rufo-griseae sub-palmar. Venter pallidus, albidus. Pedes rufescentes, basi pallidi." [End of p. 380.]

Brachyiulus pusillus (Leach), non Verhoeff.

Syn. *Brachyiulus* (*Microbrachyiulus*) *littoralis*, Verhoeff

Julus pusillus, Leach, 1814, Trans. Linn. Soc. Lond. xi. p. 370; 1817, Zool. Misc. in. p. 35.

In 1917 I brought forward *B. (Microbrachyiulus) littoralis*, Verhoeff, as British on the strength of a large number of
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examples found at Ainsdale, near Southport, in April 1916, which were kindly identified by Brölemann. Since then I have taken examples of the same species in the Forth Area of Scotland, in the counties of Northumberland and Durham, both inland and on the coast, and in other localities, including the South Coast at Swanage. In every case expert examinations of the males were made by Mr. and Mrs. Brade-Birks, proving the species to be Verhoeff's *littoralis*.

Leach described *J. pusillus* from Edinburgh and London, and as I have secured material from one of these localities, and no British examples as yet dissected have been found to be referable to *pusillus* as diagnosed by Verhoeff, one is forced to the conclusion that when he demonstrated that there were two allied species, Verhoeff unfortunately gave the name *littoralis* to what was in reality Leach's species. I may have the opportunity this winter of going into the question of how far Verhoeff followed previous continental authors as regards *B. pusillus*; in any case, a new name must be found for *B. pusillus* of Verhoeff (non Leach), but as the names *toleti*, Am Stein (1857) and *stuebergii*, Fanzago (1875), are given as synonyms of *pusillus* by Latzel, and might be referable to either species, I dare not go further in the matter just now.

Craspedosoma rawlinii, Leach.

Syn. *Craspedosoma simile*, Verhoeff, non Attems.

Craspedosoma rawlinii, Leach, 1814, Trans. Linn. Soc. Lond. xi. p. 380; 1817, Zool. Misc. iii. p. 36, pl. cxxxiv. figs. 1-5.

Craspedosoma rawlinii, Samouelle, 1819, The Entomologist's Useful Compendium, p. 114.

Craspedosoma rawlinii, var. *simile*, Verhoeff, 1891, Berl. Ent. Zeitsch. xxxvi. pp. 129-130.

Craspedosoma simile, Verhoeff, 1910, Sitzungsber. Ges. Naturf. Freunde, no. 1, pp. 19-62, figs.

Verhoeff first described his *simile* in 1891 as a variety of *rawlinii*, but later raised it to specific rank, and in 1910 (reference above cited) he reviewed the genus *Craspedosoma* (pp. 30-55) and gave the tables of his subdivisions, species, and subspecies. That the species he regards as *rawlinii* and *simile* are well characterized is distinctly demonstrated, but here again I contend that Verhoeff's species should be referred to the species Leach described.

In 1912 I sent Verhoeff specimens of *Craspedosoma* from Gibside, County Durham, which he returned as *C. simile* and

C. simile rhenanum, and as such I recorded them *. Examples identified by Ellingsen from Norway (a large series) were all referred to *simile* (and subspecies and varieties thereof) by Verhoeff (Zool. Anz. xxxix. pp. 499-511, May 1912), whilst the *C. rawinsii* recorded from Holland in moles' nests by Father Hesellhaus, S.J. (Tijdschrift voor Ent. lvi. 1913, p. 240), was later (*l. c.* lvii. 1914, p. 80) referred by Verhoeff to *simile*. It therefore seems that no examples of what he regards to be *rawinsii* have been examined by Verhoeff from our faunal area, all so named being referred to *simile*, and until the reverse is proved I consider it distinctly advisable to regard Verhoeff's *simile* as a synonym of *rawinsii*, Leach. In the meantime, it is to be hoped that more British examples may be secured for study.

Thus a new name is necessary for the *rawinsii* of Verhoeff (non Leach), but as Latzel gives the names *marmoratum*, C. K. (1847), and *gibbosum*, Am Stein (1857), as synonyms, it would not be wise to suggest a new name without further research.

Craspedosoma leachi (nom. nov.), Bagn.

Syn. *Craspedosoma simile*, Attems (non Verhoeff), 1895, Sitz. k. Akad. Wiss. Wien, math.-naturw. Cl. civ. pp. 75-76.

A species allied to *mutabile*, Latz. When Attems described it he was aware of Verhoeff's var. *simile* of *rawinsii*, but the raising of this form to specific rank rendered it necessary to give another name to Attems's species.

Polymicrodon polydesmoides (Leach).

Syn. *Polymicrodon latzei* (Verhoeff).

Craspedosoma polydesmoides, Leach, 1814, Trans. Linn. Soc. Lond. xi. p. 380; 1817, Zool. Misc. iii. p. 16, pl. cxxiv. figs. 6-9; Samouelle, 1819, The Entomologist's Useful Compendium, p. 114.

Atractosoma polydesmoides of later British authors.

Atractosoma latzei, Verhoeff, 1891, Berl. Ent. Zeitsch. xxxvi. pp. 127-128, figs. 4-6.

Polymicrodon latzei, Verhoeff, 1897, Berlin. Archiv. f. Naturgesch. i. pp. 129-138; 1912, Trans. Nat. Hist. Soc. Northumberland & Durham, n. s., iv. pp. 159-166, pl. x. figs. 4-7.

Also *Polymicrodon latzei* of recent authors.

Atractosoma latzei was described by Verhoeff in 1891 from the south of England, his description being based upon

* "Brief Records of *Chatechylene vesuviana*, Newp., and other Myriapods new to the British Fauna," The Zoologist, July 1912.

a solitary poorly preserved male example, and six years later the same author instituted the genus *Polymierodon* for that species. In 1911 I submitted numerous examples of *P. latzei* to Verhoeff from the north of England, who (1912) wrote at some length upon this material. Nowhere have I seen any attempt to show how *latzei* differs from Leach's species *polydesmoides*, described somewhat over a hundred years ago (and figured) from South Devon, of which Samouelle says "inhabits Devonshire under stones. It is common all along the borders of Dartmoor and on the southern coast. It was once taken by Dr. Leach in the garden of the British Museum."

I have twice stated that there appeared to be two allied species, referring the commoner to *latzei* and the rarer to *polydesmoides*; but in recent years I have made a closer study of the Diplopoda, and I am convinced that the so-regarded rarer species is in reality the later larval stages of *latzei*.

Verhoeff states (1912, p. 165) that the occurrence of *P. latzei* in the north of England is very noteworthy from the zoogeographical point of view "since this is the first time that a Craspedosomid of '*Attractosoma*-habit' has been recorded from the northern region affected by the Ice Age. This is by far the most northerly record for any such Craspedosomid." As a matter of fact, the species is not uncommon in Scotland and is one of the commonest Diplopods in the northern counties of England; it is probably as common in the midlands and the south, where I have collected it in North and South Devon, Bath, Oxford, Swanage, Portsmouth, Isle of Wight, and in the London district.

I see no grounds whatever for the retention of the name *latzei*, which I consider must fall as a synonym of *polydesmoides*.

XXXVIII.—New *Lepidoptera* in the Joicey Collection. By LOUIS B. PROUT, F.E.S.

Family Zygaenidae.

1. *Caprima chrysosoma*.

♀.—31 mm.

Head and body orange-ochreous; antennal shaft blackish, with blue irroration (tips lost); tarsi blue-blackish on upper side; tibial spurs almost entirely atrophied.

Fore wing long and narrow, more recalling *Aphantophala*, or even *Docleopsis*, than *Caprina*; SC^3 wanting, R^1 just stalked, DC acutely inangled; black, irrorated with blue; a small ochre-yellow patch at base, produced on the space between costal edge and vein C to a length of nearly 2 mm.; a narrow ochre-yellow streak from SC at 4 or 5 mm. from base, running very obliquely in direction of termen but not quite reaching SM^2 .

Hind wing black with blue irroration; abdominal margin ochre-yellow for a width of over 1 mm. At termen appearing to widen on account of some yellow irroration.

Underside similar, but in part with stronger blue and purple reflections, the yellow markings somewhat extended, the fore wing with some additional yellow scales in and distally to the posterior angle of the cell and at distal end of abdominal margin.

Ara Is., March-May 1916 (*W. J. C. Frost*).

Family Geometridæ.

Subfam. STERREUXÆ.

2. *Semæopus subtranslucens*.

♀.—33 mm.

Head and body nearly concolorous with wings; antennal joints not projecting; ciliation fully as long as diameter of shaft; pectus not densely hairy.

Fore wing with apex acute, termen rather irregularly suberemulate; proximal areole ample, distal minute, SC^2 arising well down on the stalk of SC^{1+2} ; subdiaphanous whitish, with slight pink reflections and with some somewhat olivaceous* irroration; costal margin and base olivaceous*; markings olivaceous*, antemedian line before one-third, excurved in cell and in submedian area; cell-mark ocelloid; median line dentate, from five-eighths costa, oblique outwards to SC^2 , somewhat incurved between the radials and strongly behind middle, reaching hind margin about middle; a duplicating line just beyond the median commences about R^1 , feeble at first but becoming distinct and thickening, almost connected with median by olivaceous shading in posterior part; postmedian line dentate, placed midway between this and termen or slightly nearer the

* "Buff with a tinge of olive" would perhaps better describe this

latter, very oblique outwards between SC^1 and SC^2 , where it is acutely angulated, incurved and thickened into two spots between the radials and again (though less strongly) behind M^2 ; terminal line olivaceous, accompanied by triangular interneural dots (pointing proximad).

Head wing with termen irregular, dentate, the teeth at R^1 and R^2 longest and sharpest; R^2 very shortly stalked, M^1 arising rather nearer R^1 ; irroration in proximal half in part fuscous; first line wanting; cell-spot round, black, without pale centre; the other markings corresponding to those of fore wing.

Underside paler; fore wing with costal margin somewhat olivaceous; both wings with cell-spot ocelloid, median and postmedian and terminal markings nearly as above.

Sierra del Libano, Colombia, 6000 feet (*H. H. Smith*).

Rather recalls *S. trygalita*, Warr. (Nov. Zool. xi, 36), but distinguishable by the relatively long antennal ciliation and larger teeth of termen of hind wing, as well as by the venation. These two species together with "*Trygones*" *perbonaa*, Schaus, so far bridge over the supposed gap between *Scenopis* and *Trygones* that I doubt whether the latter can be regarded as more than a section.

3. *Anisodis (Brachycola) clandestina*.

♂.—32 mm.

Structure of antenna, palpus, legs, areole, etc., approximately as in *absconditaria*; palpus with second joint beneath perhaps clearer whitish and more appressed-scaled; abdominal cavity enormously developed, the sternal tuft less developed. Smaller, wings shorter, irroration fairly strong, purple-reddish (in *absconditaria* extremely weak, browner), underside more strongly marked, including some rather noticeable pink irroration at middle of costa of hind wing.

Khasis, type in coll. Joicey; 1 ♂ in coll. L. B. Prout (genitalia examined by Rev. C. R. N. Burrows). Pundaloya, Ceylon (coll. Tring Mus.). Penang and Gunong Lijau (coll. Tring Mus.) ocelloid form of central spot persisting (in type giving place to punctiform).—Larut Hill, Perak, 4360 ft., 21st April, 1898 (*S. S. Flower*), 1 ♀; Singapore (*H. N. Ridley*), a good series; Sarawak, 1 ♂ ♀ (*Wallace*) (coll. Brit. Mus.).

This is essentially the *abrinaria* of Hampson's 'Fauna of British India, Moths,' iii. p. 446, although, on account of

shortage of material and preponderance of ♀♀ in the British Museum collection at that time, he mixed in some very heterogenous elements. *A. obrinaria*, Gu.=*caligata*, Walk.=*similaria*, Walk., and *A. pallida* (bon. sp.?) belong to the typical section *Anisodes* and have no areole. *A. obli-viaria*, Walk.=*suspicaria*, Snell., to the section *Pericera*, Meyr. (nec Hamp.), also with no areole, but with hind femur tufted.

I should have considered this a local form—more rufescent—of *nireopuncta*, Warr. (Nov. Zool. iv. p. 48), but the genitalia show that it has reached full specific rank. In *nireopuncta* the uncus is more long and slender, the valves very different, the penis has a very distinct cornutus (or perhaps bunch of cornuti), and there is a better developed pair of hair-brushes on the 14th (?) abdominal segment.

4. *Flavinia allogaster*.

♂.—30 mm.

Closely similar to *circundata*, Maassen (Stübel's Reisen, Lep. pp. 101, 130, t. iv. f. 22). Abdomen with a pale dorsal line as in *alcidamea*, Druce (Proc. Zool. Soc. Lond. 1890, p. 498).

Fore wing with the apical black border broadened, its proximal edge on the upper surface at R¹ being over 4 mm. from the apex, at R² fully 3 mm. from termen, on the under surface very slightly less broad; black on hind margin slightly broadened.

Head wing with the black distal border above less narrowed between R¹ and M².

Pern. without more exact locality. Type in coll. Joicey (ex Schaus); three in coll. Brit. Mus. from the same source, mixed with true *circundata*.

Family Drepanidæ.

5. *Cyclidia substigmaria*, Hbn.

It has been unaccountably overlooked that this species was described and figured by Hübner ('Zutrüge,' iii. 29, figs. 519-520) from "China," i. e. no doubt S. China, and represents unmistakably the form later described by Walker (List Lep. Ins. xxiv. 1121) from Hong Kong as "*Abraxas*" *capitata*, though the last-named author neglects to describe the underside. The common Indian race, which has for so long passed as *substigmaria* (see, for instance, Hampson's Fauna

of British India, Moths,' vol. i. pp. 327, 328, fig. 225, Strand in Seitz 'Macrolepidoptera,' vol. ii. p. 196, pl. 23 f), therefore remains without a name and I propose to call it *Cyclidia substigmatica superstigmatica*, subsp. nov. Ground-colour whitish, markings fawn-brownish, always more or less shadowy, subterminal spots at inner margin of fore wing well defined, cell-spot of hind wing above black.

Dharmasala, Kulu, Sikkim, Burma, etc.; type ♂ (Darjeeling, ex coll. Lidderdale) in coll. Jocey.

From Yrianatong, Tibet, comes a greyer, more suffused race, with the cell-spot of the hind wing above generally less deep black than in the form *superstigmatica*, the subterminal brown markings of fore wing not, or scarcely, more strongly developed than the posterior end of the line which precedes them proximally. I name this *substigmatica laterimedia*, subsp. nov. Type in coll. Jocey.

Typical *substigmatica* from China and Formosa (also, in Tring Museum, from Tonkin) is very similar to subsp. *late media*, but less dark grey, the cell-spot of the hind wing above still weaker, the subterminal dots generally connected by stronger grey shading, the subterminal markings of the fore wing frequently confluent with the preceding line so as to form a brownish pyramid, the cell-spots generally less intensely black.

The Japanese representative, *nigralbata*, Warr. (Nov. Zool. xxi. p. 401), may possibly be a separate species, though most collections have mixed it with "*capitata*" (i. e., *substigmatica substigmatica*), not even recognising the marked distinctions as racial.

Family Arctiidae.

Subfam. LITHOSTICTINÆ.

6. *Coprimima esthla*.

♂ ?.—31–32 mm.

Similar to *C. calida*, Walk., but larger. The yellow on patagia and tegulae more extended.

Fore wing with the yellow area broad, the black at base rather broad, especially in the ♀, where it curves outwards along costal margin, the black costal margin in middle very narrow in ♀, wanting in ♂.

Hind wing rather more produced in ternal region than in *calida*, the black along abdominal margin broad, at apex moderately broad, at distal margin between M' and tornus, on the other hand, quite narrow (recalling *isabellæ*, Rothschild);

apical area wanting the "cupreous-red" cloud which in *calida* is always present beneath and generally also above.

Goodenough I., 2500-4000 ft., Apr. 1913 (*A. S. Meek*).

Type ♂, 2 ♀ in coll. Joicey. Also in Tring Museum.

Possibly a local form of *calida*, though very different from Hampson's "ab. 1."

Subfam. *Acrtiniæ*.

7. *Heliactinidia tornensis*.

♂.—30 mm.

Similar to *chigninda*, Druce.

Fore wing slightly more rounded, rather blacker brown; streak behind cell longer, crossing base of M²; outer band broader, not indented at posterior extremity of cell.

Hind wing without the black costal area; the streaks on submedian fold and in abdominal area wanting.

Tornó, Cauca Valley, Colombia, August 1907. Type in coll. Joicey.

Family *Hypsiidæ*.

8. *Phagorista bisignibasis*.

?.—58 mm.

Head and thorax above black; face marked with white at lower extremity, occiput and front of thorax narrowly marked with white; breast and palpus beneath (to near end of second joint) orange; abdomen orange with narrow black anterior rings; legs orange marked with black, tarsi mostly black; antennal joints not projecting.

Fore wing light reddish orange, along costal and hind margins narrowly and irregularly black; a small black patch at base, with its outer edge convex and containing a pure white basal spot, close to costa; apical region black, its boundary rather straight from proximal end of areole in direction of tornus but narrowly interrupted at submedian fold, followed by a black subtoral and a small whitish toral spot between SC¹ and M¹ placed in the apical patch near its proximal edge, slightly broader than in *agaristoides*, Bdv., but proximally indented in the middle; fringe spotted and tipped with white.

Hind wing scarcely more reddish; a black distal border about as in *agaristoides*.

Vnder side similar, fore wing without white toral spot.

Tanza, German E. Africa, February. Type in coll. Joicey.

9. *Phægorista trialbata*.

♂.—85 mm.

Akin to *agaristoides*, differing as follows:—Palpus with third joint shorter; second joint beneath narrowly marked with white (in *agaristoides* less narrowly with orange).

Fore wing above with the oblique streak behind cell larger and narrower, pinkish white; a small long-oval pinkish-white spot in front of it, beyond middle of cell; subapical patch white, as in some *agaristoides*, but considerably broader and somewhat longer, reaching vein M^2 , its distal edge irregularly curved; no supplementary spot on submedian fold; fringe not white at apex.

Hind wing with the border narrower than in *agaristoides*; orange ground-colour less reddish than in most *agaristoides*. Fore wing beneath orange as far as the black apical area, only with the costal margin narrowly black.

Uganda (E. S. Gledhill). Type in coll. Joicey.

XXXIX.—*Descriptions and Records of Bees*.—LXXXI.

By T. D. A. COCKERELL, University of Colorado.

Augochlora (Odontochlora) lyoni, sp. n.

♀.—Length about 8.5 mm., anterior wing 6.

Robust, black, with strong metallic tints as follows: clypeus (which is smooth, with well-separated large punctures) green in middle and purplish at sides; cheeks blue-green next to orbits, otherwise purplish; region on each side of antennæ obscurely purplish; vertex greenish; tubercles bright green; mesothorax with disc obscurely green, margins purple; scutellum greenish; post-scutellum and area of metathorax purple; mesopleura dark purple edged with blue; first abdominal segment suffused sublaterally with bright green and purple; second with similar colours, but less distinct, the remaining segments black. Flagellum ferruginous beneath; front dull and granular; ocelli not enlarged; process of labrum broadly truncate, slightly gibbous; mesothorax densely punctured, except the posterior middle, where the punctures are sparse on a shining ground; area of metathorax with numerous very fine more or less wrinkled striæ; posterior face with no

sharp margin; tegulae reddish. Wings dusky, stigma and nervures pale yellowish brown; first r. n. meeting second t.-c. Legs reddish piceous, with pale pubescence; hind spur simple. Abdomen shining, thinly hairy, with very small punctures; first dorsal segment with a low tubercle on middle of disc; first ventral segment with a long slender spine; last dorsal segment with fuscous hair.

San Julian, Venezuela, July 19, 1900 (*M. W. Lyon, Jr.*).
U.S. Nat. Museum.

Nearest to the Mexican *A. zophodes* (*Halictus zophodes*, Vachal), but distinguished by the smooth and shining surface of clypeus, with well-separated punctures. The tubercle on the first dorsal segment of abdomen recalls the Australian *Halictus mirandus*, Ckll.

Agapostemon viequesensis, sp. n.

♀.—Length about 8 mm., anterior wing 6.

Head and thorax brilliant bluish green; lower margin of clypeus broadly black; labrum and mandibles red, the latter black subapically; sides of face and front suffused with purple-blue; flagellum dull ferruginous beneath, but the last joint bright ferruginous on both sides; clypeus and supraclypeal area shining; mesothorax dull, minutely granular; scutellum rather yellowish green, shining, somewhat liginous; area of metathorax purple, poorly defined, with obscure rugae; posterior truncation bright green, with a sharp edge; tegulae light ferruginous. Wings dusky hyaline, stigma clear honey-colour; second s.m. receiving first r. n. a considerable distance from its end. Legs light ferruginous, with pale yellowish hair, that on outer sides of tibiae more or less fuscous. Abdomen mainly yellowish green, with blue-purple shades on apical half, but the first three segments have transverse median bands of reddish brown, where the surface is not metallic; bases of segments with pale tomentum; venter mainly pale fulvous.

Vieques Island, Porto Rico, West Indies, Feb. 1899 (*Jug. Busck*). U.S. Nat. Museum.

In Vachal's table it runs out at 14, and it is scarcely to be compared with any described species. The extreme bases of the abdominal segments are testaceous, but the apical margins sliding over them are not noticeably discoloured.

Neocorynura discolor (Smith).

Aguchlora tisiphone, Gribodo, is a synonym. Smith's

type was from Oajaca, and Gribodo's was marked "Oajuca?" (*sic*).

The following species are now recorded from new localities:—

Augochlora radians (Vachal). Cacao, Trece Aguas, Alta Vera Paz, Guatemala, April 25 (*Schwarz and Barber*).

This is probably the same as the so-called *A. vesta* from Mexico in the British Museum, but it is not true *vesta*.

A. fercida. Smith. Tlahualilo, Durango, Mexico, at peach blossoms (*A. W. Morrill*).

A. illustris (Vachal). Colombia, from C. F. Baker collection.

A. phæmonœ (Schrottky). Sapucay, Paraguay, March (*W. T. Foster*).

A. nigrocyanæa, Ckll. Tampico, Tamaulipas, Mexico, Dec. 6 (*F. C. Bishopp*).

A. esox (Vachal). Paraiso, Canal Zone, Panama, Jan. 18 (*Aug. Busck*).

A. seminigra, Ckll. Cordoba, Mexico, Jan. 20 (*F. Knab*).

The *A. nigrocyanæa* females from Tampico are variable; one has strong purple tints on apical part of abdomen, which the other lacks; the latter has the mesothorax black.

Xenoglossa howardi, sp. n.

♂. (Type.)—Length about 12 mm., anterior wing 9.

Black, including the clypeus and antennæ; mandibles fulvous apically, bidentate, but with a slight notch on inner side indicating the rudiment of a third tooth; labrum brown at sides, covered with appressed pale hair; maxillary palpi 5-jointed; hair of head long and creamy white, with some fuscous hairs on vertex and below antennæ; hair of thorax above clear reddish fulvous, without black; a large patch on middle of mesopleura, and tubercles, with dark fuscous hair; tegulae ferruginous. Wings dusky. Legs black, the spurs stramineous, and tarsi at apex ferruginous; hair of middle and posterior tibiae and tarsi dark brown, but the femora and anterior legs with pale hair. Abdomen shining black, minutely punctured, hind margins of segments 2 to 4 suffusedly reddened; no hair-bands, but base of second segment at sides with thin greyish hair; venter with thin whitish hair.

♀.—Length about 12.5 mm.

Similar to the male, but all the legs with dark brown

hair; dark brown hair on sides of thorax more extensive; second and third abdominal segments with a thin transverse band of greyish tomentum, not conspicuous.

Type (male) from the Federal District, Mexico (*J. R. Inida*, 56). U.S. Nat. Museum. Female from Oaxaca, Mexico, Sept. 18 (*L. O. Howard*).

Related to *X. assimilis* (Smith), but without the black patch of hair on thorax above in female. The male antennae are formed as in *X. pruinosa* (Say). The species belongs to the subgenus *Peponapis* of Robertson, though differing from his type-species in the black clypeus of male and reduction of pale hair on female abdomen.

Allodape candida, Smith.

♀.—Mkonumbi, near Lamu, Tana River, E. Africa. Sept. 1892 (*Chandler Exped.*).

This differs slightly from Smith's description, and from a specimen from Abyssinia, sent by Gribodo, in that the light band on clypeus is not at all widened at the lower end.

Leptergatis globulifera, sp. n.?

♂.—Length 6.65 mm.

Black, with the long flagellum dull ferruginous beneath, tegulae rufo-piceous, legs more or less suffused with reddish, the tarsi and tibiae at apex ferruginous.

Close to *L. armata* (Smith), differing thus: scape dark; ocelli closer together; clypeus and labrum entirely black, mandibles mainly dark reddish; tegulae darker; abdominal hair-bands less distinct; wings a little more dusky. The hind legs are practically as in *L. armata*. The co-type has the mandibles paler, with a large pale yellowish spot, beyond which they are ferruginous.

Venezuela; type from Aroa, Dec. 12, 1910 (*M. A. Carriker*). U.S. Nat. Museum. Another is from Lagunita de Aroa, 2000 ft. alt. (*M. A. Carriker*).

Prosopeis holomaelena, sp. n.

♀.—Length about 6 mm., anterior wing 4.5.

Entirely black, without light markings; robust, with no depression between first and second dorsal abdominal segments; clypeus long, dull, the punctures very indistinct; apical part of flagellum bright ferruginous beneath; punctures of mesothorax and scutellum excessively minute, the

surface between them microscopically rugulose; area of metathorax with irregular rugæ; tegulæ black. Wings slightly dusky, stigma and nervures very dark; second s.m. long; recurrent nervures meeting the transverso-cubitals; tibiae and tarsi with some pale hair. Abdomen shining, impunctate, the surface with a delicate microscopical tessellation.

Buitenzorg, Java, March 10, 1909 (*Bryant and Palmer*).
U.S. Nat. Museum.

Nearest to *P. impunctata*, Friese, but easily separated by the entirely black face.

Prosopis coroicensis, sp. n.

♂.—Length about 7.5 mm., anterior wing 6.2.

Black, robust, without yellow markings on thorax or legs; face long, eyes very long; clypeus (except a narrow dark stripe on each side), large supraclypeal mark (rounded above), lateral face-marks (extending along orbital margins halfway up front, where they end obtusely, shaped like feet on tip-toe, with very long tapering toes), all bright chrome-yellow; antennæ piceous; scape very short; mandibles stout, suffused with reddish; front dull, very densely and finely punctured; mesothorax and scutellum dull, with very large well-separated punctures; mesopleuræ with large sparse punctures; area of metathorax with coarse transverse and longitudinal ridges; posterior truncation very coarsely sculptured, flat, with well-defined margins; tegulæ piceous. Wings deep fuliginous; first r. n. joining first s.m. considerably before its end. Legs more or less reddish, the anterior tibiae dusky ferruginous in front. Abdomen shining, without hair-bands; first two segments quite strongly punctured, third with minute punctures; first ventral segment emarginate at apex.

Coroico, Yungas, Bolivia, May 1, 1899. U.S. Nat. Museum. No collector's name is given.

By the venation this resembles *P. petroselini*, Schrottky, but it is easily separated by the fuliginous wings and other characters.

Prosopis tricolor, Schrottky.

?.—Differs from the male thus: clypeus with an elongate-cuneiform rufo-fuscous mark on each side; antennæ entirely ferruginous; yellow band on prothorax interrupted in

middle; marks at bases of tibiae cream-colour. Schrottky only described the male.

San Bernardino, Paraguay, Oct. 21 (*K. Fiebrig*). U.S. Nat. Museum.

Prosopis flavohumeralis, sp. n.

♀.—Length about 6 mm., anterior wing 4.5.

Black, with yellow markings; mandibles ferruginous; labrum black; clypeus yellow except narrow lower margin and a stripe on each side, failing above; supraclypeal mark broadly subtriangular, while above it, on front, are two narrow yellow marks close together; lateral face-marks extending nearly to summit of eye, where they are broadly but very obliquely truncate, and diverge a little from the orbital margin; scape and flagellum dusky ferruginous beneath, darker above; front very densely and minutely punctured, vertex more coarsely; tubercles and the sharp projecting anterior lateral angles of prothorax yellow, but no other yellow on thorax; mesothorax and scutellum perfectly dull and coarsely punctured; area of metathorax with raised lines in the form of a square, but without the sculpture, except a microscopical cancellation all over; posterior truncation distinct; tegulae with a yellow spot. Wings dusky; recurrent nervures meeting transversocubitals; marginal cell broad (deep). Legs with anterior tibiae yellow in front, the others at base; tarsi more or less reddish. Abdomen shining, without hair-bands; first segment distinctly though minutely punctured, second and third extremely sparsely and indistinctly.

San Bernardino, Paraguay (*K. Fiebrig*). U.S. Nat. Museum.

In Schrottky's tables of Paraguay species this runs to *P. itapensis*, Sky., but differs by the dusky wings and spots on angles of prothorax. It seems to closely resemble *P. lychois*, Vachal, differing in the punctuation of the abdomen.

Prosopis howardiella, sp. n.

♂.—Length about 3.5 mm.

Head all black except a large obtusely trilobed (the sides concave) pale yellow patch on clypeus; scape black; flagellum thick, ferruginous beneath; thorax entirely black; mesothorax and scutellum with sparse very minute punctures on a microscopically tessellate surface; area of metathorax

large, with a few small irregular basal plicæ, and a median raised line continuous to hind margin; posterior truncation of metathorax not clearly defined as usual, its upper lateral corners not defined at all, but its upper middle separated by a short ridge from the basal area, while an oblique ciliated ridge limits it on each side; abdomen impunctate, microscopically transversely lineolate, first segment narrowed. Wings clear, very faintly dusky apically; recurrent nervures ending a little before the transverso-cubitals; second submarginal cell nearly square, its inner and outer sides parallel; bases of tibiæ and anterior tibiæ in front, cream-colour; tarsi pale ferruginous.

Oaxaca, Mexico, April 30 (*L. O. Howard*). U.S. National Museum.

Looks like some small Pemphredonid wasp, but is a true bee, with many plumose hairs on body. It is more or less related to Vachal's *P. revisa*, *P. puerula*, *P. fissa*, &c., but much smaller and very distinct.

Prosopis subgrisea, sp. n.

♀.—Length about 7 mm., anterior wing 5.3.

Black, with yellowish-white or brownish-white markings; mandibles and labrum black; clypeus long, black, the lower margin suffusedly reddish, but with a cream-coloured stripe running down its middle (not quite reaching upper end), not quite so broad as the area on either side; supraclypeal mark small, roundish; lateral face-marks linear, extending along orbital margins nearly halfway up front; scape and base of flagellum ferruginous, rest of flagellum black above and faintly reddish below; front appearing granular; upper part of prothorax with linear light margin, and greater part of tubercles light; a light band covering anterior half of scutellum, a band on postscutellum, and axillæ light; mesothorax dull, coarsely punctured; area of metathorax with coarse rugæ; posterior truncation and sides of metathorax densely covered with pale grey tomentum; pleura sparsely punctured; tegulæ with a light spot. Wings brownish hyaline, with the costal field, including marginal cell and beyond, fuliginous; hind tibiæ with rather more than basal half white. Abdomen dullish, the punctures excessively minute and close; first and second segments with yellowish-white marginal hair-bands, third to fifth with hind margins obscurely pallid; apex with dark fuscous hair.

San Rafael, Jicoltepec, Mexico. U.S. National Museum.
From the Ashmead collection; no doubt collected by C. H.
T. Townsend.

Resembles *P. mexicana*, Cresson, but easily separated by the linear lateral face-marks, and other characters. It is evidently closely allied to *P. maculipennis*, Smith, known only in the male, but that has yellow markings and the first abdominal segment rather strongly punctured.

Prosopis knabi, sp. n.

♂.—Length about 3.75 mm., anterior wing 3.

Black, with yellow markings; scape black, broadly red at end, and largely in front; flagellum entirely bright ferruginous, a little darker above; clypeus entirely, sub-triangular supraclypeal mark (broader than long), and lateral face-marks all light yellowish, the latter ending obtusely on orbital margin about halfway up front (former practically as in *P. episcopalis*, Ckll.); pale marks of thorax confined to tubercles and a broadly interrupted line on prothorax above; tegulae testaceous, hyaline in front, with a yellow spot; mesothorax closely and strongly punctured, scutellum rather more sparsely, the surface between the punctures smooth; base of metathorax with strong longitudinal and transverse rugae, but the sculpture is mainly and essentially transverse; whole sides of thorax strongly punctured, the metathorax at sides bare (without grey tomentum); knees, anterior tibiae (except a large patch behind), middle and hind tibiae very broadly at base and narrowly at apex, and the tarsi all pale yellow. Wings clear; stigma and nervures sepia; first recurrent nervure joining first submarginal cell a short distance before its end. Abdomen appearing impunctate under a lens, but the microscope shows minute punctures on first segment.

Champerico, Guatemala, Aug. 4, 1905 (*Frederick Knab*).
U.S. National Museum.

This minute species recalls some of those of the United States, such as *P. modesta*, Say, but it will be readily known by the red flagellum and transverse rugae at base of metathorax.

The following localities are new:—

Prosopis mexicana, Cresson. Tampico, Mexico, Dec. 15
(*E. A. Schwarz*); Frontera, Mexico.

Prosopis azteca, Cresson. San Rafael, Jicoltepec, Mexico
(*L. O. Howard*).

XL.—On some Fishes from the Shari River, with Descriptions
of Two new Species. By G. A. BOULENGER, F.R.S.

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M. A. BAUDON, Administrator of the Ubanghi-Shari Colony, French Equatorial Africa, has kindly sent me, for the British Museum, a little series of small fishes from the Shari River, containing examples of two species not included in Dr. Pellegrin's excellent book 'Les Poissons du Bassin du Tchad,' and of two others that are undescribed.

The genus *Barbus*, as yet unknown from that Basin, is represented by two species: *B. pleuropholis*, Blgr., previously recorded from the Congo, the Aruwimi, and the Uelle, and *B. baudoni*, sp. n. The Cyprinodonts belong to two species: *Haplochromis acuticaudatus*, Pellegr., and *H. hutereaui*, Blgr., the latter recently discovered in the Uelle. Other species are *Anabas petherici*, Gthr., *Tilapia melanopleura*, A. Dum., *Epiplatys nana*, Blgr.*, and *Audussonia brevior*, sp. n., belonging to a very remarkable genus of Siluridae, of which a single species was known: *A. leptura*, Blgr., from the Upper Nile and the Bah-el-Gebel.

Barbus baudoni.

Depth of body equal to length of head, $3\frac{2}{3}$ to $3\frac{3}{4}$ times in total length. Snout rounded, shorter than the eye, which is $2\frac{2}{3}$ times in length of head and equals interorbital width; mouth small, terminal, with thin lips; no barbels. Dorsal III 8, equally distant from centre of eye and from caudal, border very feebly concave; last simple ray not enlarged, not serrated, a little shorter than head. Anal III 5, not reaching caudal. Pectoral about $\frac{3}{4}$ length of head, not reaching ventral; base of latter below middle of dorsal. Caudal peduncle $1\frac{1}{2}$ times as long as deep. Scales radiately striated, 23–24 $\frac{1}{2}$, 2 between lateral line and ventral, 8 round caudal peduncle. Yellowish brown above, silvery beneath; a band of crowded black dots from the gill-opening to the base of the caudal; on this band, three round black spots, the first just in front of the dorsal, the second just behind the latter,

* These specimens connect the Nile fish with *E. uellensis*, Blgr., which is probably not entitled to stand as a distinct species.

the third at the base of the caudal; a fourth black spot above the anterior rays of the anal.

Total length 30 mm.

Allied to *B. trispilominus*, Blgr., from the Ogowe and Lower Congo.

Andersonia pellegrini.

Depth of body 9 times in total length, length of head 6 times. Head $1\frac{1}{2}$ times as long as broad; snout obtusely pointed, as long as postocular part of head, 3 times as long as diameter of eye, which is $\frac{2}{3}$ interorbital width. Maxillary barbel twice as long as inner mandibular, and $\frac{3}{4}$ length of head. Median occipital process $3\frac{1}{2}$ times as long as broad, narrower than and $1\frac{1}{2}$ times the length of the laterals. Dorsal I 6, twice as distant from end of snout as from caudal, first ray as long as head. Anal 9. Pectoral $\frac{3}{4}$ length of head. Caudal peduncle a little more than $\frac{1}{3}$ of the total length. 24 dorsal and 21 ventral scutes, the last 9 on caudal peduncle. Greyish above, with four rather indistinct dark bars across the back; dorsal blackish in the distal third.

Total length 42 mm.

Closely allied to *A. leptura*, Blgr. Distinguished by the smaller eye and the different proportions of the occipital processes.

Named in honour of the distinguished author of the 'Poissons du Bassin du Tchad.'

XII.—*Descriptions of new South-American Batrachians.*

By G. A. BOULENGER, F.R.S.

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Phyllobates kingsburyi.

Head slightly longer than broad. Snout rounded-subtruncate, projecting beyond the mouth, as long as the orbit; loreal region vertical; nostril nearer the tip of the snout than the eye; interorbital space broader than the upper eyelid; tympanum very distinct, half the diameter of the eye, 3 to 4 times its distance from the latter. Fingers moderate, first and second equal, or first slightly the longer; disks rather

small; subarticular tubercles feebly prominent. Tibio-tarsal articulation reaching the eye; tibia half the length of head and body. Toes moderate, perfectly free, the disks larger than those of the fingers but smaller than the tympanum; subarticular tubercles feebly prominent; two small metatarsal tubercles, inner oval, outer round; an oblique fold along the distal half of the tarsus. Skin of upper part, finely shagreened, of lower parts smooth. Brown above, with a paler dorso-lateral streak; a black streak round the snout, continued, as a broad band, on the side of the body; usually a white streak along the upper lip, continued along the body to the groin, edged below, on the body, by a black streak or series of spots; limbs brown, with dark brown spots, arm and thigh lighter, with a dark brown streak in front and behind; lower parts white, uniform on throat and breast mottled with greyish brown.

From snout to vent 28 millim.

Four specimens from El Topo, Rio Pastaza, Eastern Ecuador, altitude 4200 feet; from Mr. M. G. Palmer's collection, 1912.

Named in pious memory of my late Attendant, Frederick Kingsbury, killed in action in Palestine, Feb. 25, 1918.

Dendrobates ranoides.

Head slightly longer than broad. Snout truncate, very feebly projecting beyond the mouth, longer than the eye; loreal region vertical; nostril nearer the tip of the snout than the eye; interorbital space broader than the upper eyelid; tympanum very distinct, $\frac{2}{3}$ the diameter of the eye, 3 times its distance from the latter. Fingers rather slender, first and second equal; disks small, not much wider than the finger; subarticular tubercles very indistinct. Tibio-tarsal articulation reaching the eye; tibia half the length of head and body. Toes slender, perfectly free, the disks larger than those of the fingers but only about half the diameter of the tympanum; subarticular tubercles feebly prominent; two small metatarsal tubercles, inner oval, outer round; a curved fold along the distal half of the tarsus. Skin granulate, finely on the upper parts and belly, more coarsely on the sides. Reddish brown above, marbled with dark brown on the head and back and with blackish cross-bars on the limbs; a pale dorso-lateral streak; a black streak round the snout, continued, as a broad band, on the temple and along the side

of the body; tympanum reddish brown; lower parts white with numerous small black spots and vermiculations.

From snout to vent 22 mm.

A single specimen from Villavicencio, Quatiquia River, Colombia, altitude 400 feet. Presented by the Wellcome Bureau of Scientific Research.

Hylodes roseus.

Tongue oval, slightly nicked behind. Vomerine teeth in short transverse series considerably behind the choanae. Head as long as broad; snout rounded, not projecting beyond the mouth; canthus rostralis indistinct; loreal region very oblique, concave; nostril twice as far from the eye as from the tip of the snout; interorbital space as broad as the upper eyelid; tympanum hidden. Fingers moderate, first a little shorter than second; disks large, a little broader than long; subarticular tubercles moderate. Tibio-tarsal articulation reaching the eye; tibia half the length of head and body. Toes moderate, perfectly free; disks as large as those of the fingers; subarticular tubercles small, feebly prominent; a single metatarsal tubercle, rather large and prominent. Skin smooth above, granular on the belly; three subconical tubercles on the upper eyelid. Grey above, with dark brown variegations; loreal region dark brown; a white streak on the canthus rostralis and on the edge of the upper eyelid, and a broader, dark-edged one from the eye to halfway down the side of the body; dark oblique bars on the sides of the head and body and on the limbs; upper eyelids and sides of body with deep pink spots; groin, sides of thigh, lower surface of arm, forearm, and tibia, and upper surface of tarsus and metatarsus deep pink; throat, belly, and lower surface of thighs grey, marbled with brown.

From snout to vent 27 mm.

A single specimen from Andagoya, Choco, Colombia. Presented by Dr. H. G. F. Squirell in 1916.

Hylodes trachyblepharis.

Tongue oval, entire or slightly nicked behind. Vomerine teeth in small groups just behind the choanae. Head as long as broad; snout rounded, not projecting beyond the mouth; canthus rostralis distinct; loreal region oblique, concave; nostril nearer the tip of the snout than the eye; interorbital space as broad as the upper eyelid; tympanum distinct, half

the diameter of the eye. Fingers moderate, first a little shorter than second; disks rather large, round, smaller than the tympanum; subarticular tubercles rather small, feebly prominent. Tibio-tarsal articulation reaching the nostril or the tip of the snout; tibia $1\frac{1}{2}$ times in length of head and body. Toes moderate, perfectly free; disks a little smaller than those of the fingers; subarticular tubercles small, feebly prominent; two metatarsal tubercles, inner oval, rather large and prominent, outer round and small. Upper parts with small glands, belly granular; upper eyelids with several subconical tubercles. Brown above, back and sides of head yellowish; a >-< -shaped black marking behind the back of the head, the antero-lateral branches of which extend to the eyes; a dark canthal streak, and two dark bars from the eye to the edge of the mouth; an oblique dark temporal streak; limbs with dark cross-bars; sides of thighs deep pink; lower parts, throat, and breast finely speckled with brown.

From snout to vent 20 mm.

Three specimens from El Topo, Rio Pastaza, E. Ecuador, 4200 ft.; from Mr. M. G. Palmer's collection, 1912.

L. plectrotylus hololius.

Tongue oval, slightly nicked behind. Vomerine teeth in long, slightly oblique series behind the choanae, not extending outwards beyond the vertical of the inner borders of the latter. Head as long as broad; snout rounded, scarcely projecting beyond the mouth; canthus rostralis indistinct; loreal region oblique, slightly concave; nostril equidistant from the eye and from the tip of the snout; interorbital space as broad as the upper eyelid; tympanum very distinct, half the diameter of the eye. Fingers moderate, obtuse, first a little shorter than second; subarticular tubercles rather large and very prominent. Tibio-tarsal articulation reaching the eye; tibia a little less than half the length from snout to vent. Toes slender, obtuse, perfectly free, not margined; subarticular tubercles moderately large, very prominent; two small metatarsal tubercles, inner oval, outer round; no tarsal fold. Skin perfectly smooth; no dorso-lateral fold. Pale brown above, with dark brown spots; a dark cross-bar between the eyes, followed by a rhombic spot; a A -shaped dark marking between the shoulders; limbs with rather indistinct dark cross-bands; lower parts white.

From snout to vent 26 mm.

A single specimen from Pebas, R. Marañon, Peru; from the collection of Mr. J. J. Mounsey, 1913.

Leptodactylus diptychus.

Tongue oval, rather strongly nicked behind. Vomerine teeth in long transverse series behind the choanae, not extending outwards beyond the vertical of the inner borders of the latter. Head as long as broad; snout rounded, projecting considerably beyond the mouth; canthus rostralis indistinct; loreal region oblique, slightly concave; nostril a little nearer the end of the snout than the eye; interorbital space a little narrower than the upper eyelid; tympanum very distinct, two-thirds the diameter of the eye. Fingers moderate, obtuse, first much longer than second; subarticular tubercles large and very prominent. Tibio-tarsal articulation reaching between the eye and the nostril; tibia half the length from snout to vent. Toes slender, obtuse, perfectly free, not margined; subarticular tubercles rather large, very prominent; two metatarsal tubercles, inner oval and about half as long as the inner toe, outer round and very small; a tarsal fold. Skin smooth above, with small warts on the sides of the body; a glandular fold above and behind the tympanum and another, narrow but prominent, from behind the upper eyelid to the hip; throat and belly smooth, with a groove defining a ventral disk; lower surface of thighs granulate. Greyish brown above, the dorso-lateral folds lighter; tympanum reddish brown; a dark brown caudal streak; temporal fold edged with blackish; lips with dark brown spots; a brown bar between the eyes and a Λ -shaped marking between the shoulders; limbs with narrow dark brown cross-bars; a white streak, edged on both sides with dark brown, along the back of the thighs; lower parts white.

From snout to vent 44 mm.

A single specimen from the Andes of Venezuela.

Leptodactylus laticeps.

Tongue roundish, entire. Vomerine teeth in very long, slightly curved transverse series behind the choanae, extending outwards to below the centre of the latter. Head much broader than long, much depressed; snout broadly rounded, scarcely projecting beyond the mouth; canthus rostralis indistinct; loreal region very oblique, slightly concave;

nostril nearer the end of the snout than the eye; tympanum very distinct, nearly as large as the eye. Fingers rather short, very obtuse, first much longer than second; subarticular tubercles large and very prominent. Tibio-tarsal articulation reaching the posterior border of the eye; tibia $2\frac{1}{4}$ times in length from snout to vent. Toes rather short, obtuse, perfectly free, not margined; subarticular tubercles small, prominent; two metatarsal tubercles, inner elliptic and two-thirds the length of the inner toe, outer round; no tarsal fold. Skin smooth; no folds on the back. Pale brown above, with large roundish black spots on the back and sides and on the upper surface of the head; five very regular vertical black bars on each side of the head, traversing the mouth, separated by narrower whitish bars; tympanum blackish, whitish in the centre; limbs with black cross-bars; whitish beneath, spotted with black.

From snout to vent 85 mm.

A single specimen from Santa Fé, Argentina, received from Mr. Falkland Ricketts in 1898.

Hyla leptoscelis.

Tongue circular, entire and slightly free behind. Vomerine teeth on a level with the posterior borders of the very large choanae, in slightly curved oblique series forming a chevron pointing forwards. Head as long as broad, very strongly depressed; snout rounded, not projecting, as long as the eye; canthus rostralis obtuse; loreal region very oblique, feebly concave; nostril near the tip of the snout; interorbital space a little broader than the upper eyelid; tympanum distinct, half the diameter of the eye. Fingers moderate, with moderately large disks, outer with a slight rudiment of web; no projecting rudiment of pollex. Hind limb extremely slender; tibio-tarsal articulation reaching a little beyond the tip of the snout; tibia eight times as long as broad, $\frac{2}{3}$ the length of head and body. Toes $\frac{3}{4}$ webbed; a feeble tarsal fold. Skin smooth, granular on the belly and under the thighs; heel with a pointed dermal appendage, which is half as long as the eye. Yellowish above, with purplish-brown markings; a large spot on the snout, two V-shaped bands between the eyes, two cross-bars on the back, a V-shaped band on the sacral region, and angular cross-bars on the limbs.

From snout to vent 26 mm.

A single specimen from Lago do Iachy, above São Paulo

de Clinenea, R. Solimoens, Brazil; from the collection of Mr. J. J. Mounsey, 1913.

Hylella ocellata.

Tongue circular, entire, and slightly free behind. Head broader than long, very strongly depressed; snout rounded, not projecting, as long as the eye, which is obliquely turned forward; no canthus rostralis, loreal region feebly concave; nostril near the tip of the snout; interorbital space broader than the upper eyelid; tympanum distinct, $\frac{2}{3}$ the diameter of the eye. Fingers rather long, with moderately large disks, outer one-fourth webbed. Hind limb very slender; tibio-tarsal articulation reaching beyond the tip of the snout; tibia seven times as long as broad, $\frac{2}{3}$ the length of head and body. Toes $\frac{3}{4}$ webbed. Skin smooth, belly granular. Violet-blue above (in spirit), with round white spots, which are small and crowded on the sides of the head and on the limbs and large and scattered, and surrounded by a blackish ring, on the back; the blue colour forms a very narrow band on the thigh; upper lip with a white edge; sides and lower parts white.

From snout to vent 29 mm.

A single specimen from Huancabamba, E. Peru, above 3000 feet (coll. E. Boettger, 1912).

XIII.—*Notes on and Descriptions of some Sawflies from the Australian Region.* By S. A. RONWER, Forest Insects, U.S. Bureau of Entomology, Washington, D.C.

THIS short paper, which is a contribution from the Branch of Forest Insects, United States Bureau of Entomology, contains the descriptions of four new species of sawflies. One of these species is especially interesting, because it represents a new genus which is the basis of a new subfamily.

The material upon which this paper is based was submitted for study by the British Museum (Natural History), and all the types will be returned to that institution.

Xiphydria obtusiventris, sp. n.

In Konow's table of *Xiphydria* this runs to *funicornis*, Konow, but it differs from the description of that species in

a number of ways and does not seem to be closely allied. The unusual short ovipositor and ninth tergite cause the abdomen to be rounded, not tapering, apically, and gives this new species a distinctive appearance.

Female.—Length to end of abdomen 8 mm.; anterior margin of clypeus rounded, medianly depressed, but with a median protuberance, which at first sight gives the impression that there is a small median tooth; malar space about half as long as the width of mandibles at the base; surface of clypeus with dorsad-ventrad striae; face and front reticulate; middle fovea small, indistinct; ocelli in a low triangle, the postocellar line longer than the ocellar line; vertex and posterior orbits finely aciculate; antennae distinctly tapering apically, 18-jointed, the third joint distinctly longer than fourth but not as long as 4 plus 5; pedicellum not half as long as third joint; scape subequal in length with third joint; proscutum broad, well defined by foveolate notauli, but the median longitudinal furrow is feeble; surface of scutum and prescutum reticulate, with a more sparsely sculptured area at the anterior middle of prescutum and lateral middle of scutum; scutellum finely granular anteriorly, smooth and shining posteriorly; sides of pronotum granular, but with many longitudinal raised lines in addition; anterior part of mesepisternum reticulate, the posterior portion smooth, polished; abdomen finely granular, but the depressed apical margins of the tergites are almost without sculpture; ninth tergite short, rounded apically, giving the end of the abdomen somewhat the same appearance as in *Odyssus*; ovipositor broad; straight above, obtusely pointed apically and tapering from a broad base, not extending much beyond the apical margin of tergites; legs normal; venation usual, the intraradius joins the radius about one-fourth the length of the intraradius from the end of the second cubital. Back: antennae and legs ferruginous; wings hyaline, with a faint yellowish tinge; venation pale brown, stigma dark brown; mandibles and sheath piceous.

Type-locality. Kurandy, N. Queensland, Australia.

Described from a single female collected May 3–June 2, 1913, by R. E. Turner at an altitude of 1100 ft.

Type. British Museum (Natural History).

ZENARGINÆ, subfam. nov.

Based on the genus *Zenarge* described below, and belongs to the family Argidae, where it may be readily separated from either of the subfamilies by the following key:—

Subfamilies of Argidae.

Anal vein complete and separate for its entire length ; first and second anal cells separated by an oblique interanal vein ; anella and recurrentella wanting.	<i>Zenarginae</i> .
Anal vein either partly or entirely wanting ; first anal cell wanting or small and separated from the second by the submedian vein ; anella and re- currentella present	1.
1. Intercosta present	<i>Arginae</i> .
Intercosta wanting	<i>Sterictiphorinae</i> .

The Argids, largely because of their three-jointed antennae, have long been considered as a distinct group, but most classifications have failed to show any relationship between them and such groups as the Perreyiidae, Loboceridae, or Pterygophoridae. A study of these four families shows, however, that they have much in common, and it is not unlikely that they had a common origin and are phylogenetically closely allied. The subfamily Zenarginae adds some evidence to this assumption, because it has certain characters which suggest an affinity with the Perreyiidae and certain others which suggest Loboceridae. The venation in the Zenarginae is different from all other sawflies. The anterior wing probably represents a generalized Argid, because, with the exception of the complete anal vein, it presents nothing remarkable. The apex of the radial cell and the form of the radial and cubital cells, especially at the base, however, suggest *Loboceras*. The hind wing is much more specialized than the hind wing of the Argids, because of the loss of anella and recurrentella, and is not unlike *Perreya*. The shape and coloration of the head is not typical of the Argids, but recalls more the head of some of the Perreyiidae.

In MacGillivray's classification the genus *Zenarge* runs to the subfamily Lophyrinae, but it has but little in common with this group, and does not even resemble it closely in venation.

ZENARGE, gen. nov.

Genotype. *Zenarge turneri*, Rohwer.

Glypeus long, the dorsad-ventrad length nearly half as great as the apical width, the anterior margin rounded laterally and emarginate medially, the dorsal margin composed of three sections, the lateral sections half the length of the median section, the entire dorsal margin sharply defined ;

labrum short, nearly truncate apically; malar space about one-third as long as the width of mandibles at base; inner margin of eyes slightly converging towards the clypeus, the area between them wider than high and the distance between them at the clypeus greater than the length of the eye; ocelli in a low triangle, the posterior ones distinctly in front of the supraorbital line; width of posterior orbits about two-thirds the cephal-caudad length of eye; antennæ 3-jointed, the third thickened apically in female, but nearly of a uniform thickness in male; pronotum well developed laterally; prescutum well defined and with a faint median longitudinal depression; anterior margin of the scutellum subangulate, the posterior margin rounded, the surface convex; first parapteron present, but in specimens in which the pronotum fits close it is concealed by a lobe-like projection of the pronotum; sternuli present but not sharply defined; mesepimeron large, with a cephal-caudad suture at about the middle; second pleural suture straight; third pleural suture straight; the metepisternum and metepimeron of equal height; propodeal spiracle large, elongate-oval, and placed near the base on the dorsal surface; metascutellum distinct; metapostnotum much reduced, hardly visible; propodeum completely chitinated and without a median suture; abdomen cylindrical; ninth tergite not especially large laterally; cerci distinct; sheath with the lower margin much thickened, the ventral surface sculptured and with some long hair; basitarsi distinctly shorter than the following joints; claws simple; intermediate tibiae armed with a pair of spines at the apical third; posterior tibiae armed with a single spine at the apical third; costal cell rather narrow; intercostal vein present; radial cell without a cross-vein or a distinct appendage, pointed at apex; three closed cubital cells, the second and third each receiving a recurrent near the base; basal vein joining the subcosta a short distance before the origin of the cubitus, longer than the first recurrent, therefore not parallel with it; first discoidal cell similar in outline to that of *Caloptilia*; nervulus received at about its length from the basal vein; anal vein complete, the first and second anal cells very much the same as in *Pseudosiobla*; radiellian cell without an appendage; one closed cubitellian cell; recurrentella wanting; arella wanting.

Zenarge turneri, sp. n.

Female.—Length 10 mm. Anterior margin of the clypeus arcuately emarginate medianly; supraclypeal area convex,

triangular in outline; median fovea rather large, deep, with sloping walls, nearly circular in outline; antennal furrows very poorly defined but present; ocellar basin shallow, rather large, triangular in outline but only poorly limited below; postocellar line distinctly shorter than the ocellocular line, subequal with the ocelloccipital line; postocellar furrow present; postocellar area poorly limited laterally, much wider than long; head shining, front with rather sparse punctures; thorax shining, with small scattered punctures; stigma three times as long as wide, of nearly uniform width for basal two-thirds, then gradually tapering to metacarpus; third cubital cell narrowed above, the third intercubitus subequal in length with the third abscissa of the radius; abdomen shining; sheath seen from the side with the apex rounded. Black; clypeus, labrum, mandibles (except tip-), face, inner orbits narrowly above antennae, posterior orbits, margin (anterior, posterior, and lateral) of pronotum, tegulae, apical two-thirds of scutellum, metascutellum, a broad band of mesopisternum, and metepisternum yellowish white; abdomen ferruginous, propodeum and apical two tergites black; legs black, four anterior coxae, trochanters, apices of femora, entire tibiae, and tarsi yellowish white; hind coxae except a large spot on upper lateral surface, trochanters, basal fourth of hind tibiae, and four apical joints of hind tarsi yellowish white; wings subhyaline, venation including stigma dark brown.

Male.—Length 9 mm. Agrees very well with the characters given for the female; differs in colour from the female in having the mesosternum ferruginous, in having all of the black of the legs (except hind tibiae and basitarsus) replaced by ferruginous; apex of abdomen black; tergites with distinct punctures which become so close on the basal segments that the surface is coriaceous; hypopygium very deeply arcuately emarginate apically.

Type-locality. Killara, Sydney, N. S. Wales, Australia.

Described from two females (one type) and one male collected at an altitude of 400 feet on August 17, 1913, by R. E. Turner, after whom the species is named.

Type and allotype. British Museum (Natural History).

Paratype. U.S. Nat. Mus.

Genus *ANCYLONEURA*, Cameron.

The genus *Ancyloneura*, Cameron, belongs to the tribe Euxini, and falls close to *Neocorys*, Rohwer, but may be

separated from the last-mentioned genus by the obsolete antennal furrows and by having the hind basitarsus shorter than the following joints.

The species which belong here have not been fully described, and seem to be closely related. The following key, which is based on literature, may aid in distinguishing the forms described:—

Key to the Species.

- | | |
|--|-----------------------------|
| Hind femora black; antennæ 15-jointed (Kirby's figure)..... | <i>nigripes</i> (Smith). |
| Hind femora reddish; antennæ with less than 15 joints | 1. |
| 1. Markings of the fore legs "sordid white"; antennæ 13-jointed. (Aru.) | <i>varipes</i> , Cameron. |
| Markings of the fore legs ferruginous; antennæ 12-jointed. (New Guinea.) | <i>wollastoni</i> , Rohwer. |

Ancyloneura wollastoni, sp. n.

In the absence of the first intercubitus this species differs from the recognized generic characters, but in all other ways it agrees with my notes and with the description.

Female.—Length 4.5 mm. Shining, without apparent sculpture; median fovea rather deep, elongate, linear; post-ocellar line slightly shorter than the ocelloccipital line; post-ocellar area not defined anteriorly and defined laterally by rather broad depressions; antennæ 12-jointed, the third joint slightly longer than the fourth and fifth; from the third joint the joints gradually decrease in length until the eleventh, which is subequal in length with the twelfth; eleventh joint a little more than twice as wide as long; stigma about three times as long as greatest width, angulate near base and tapering to a narrow apex; first intercubitus wanting; third cubital cell as long on the radius as the combined first and second; second recurrent about two-thirds the length of the second intercubitus from the base of the third cubital cell; sheath conerated; lower apical margin of lancets with regular rounded teeth. Black; apical part of femora (more extensively on posterior pair), anterior tibiae, base of anterior tarsi, basal two-thirds of intermediate tibiae, and basal half of hind tibiae ferruginous; wings brown apically, hyaline basally; venation dark brown.

Type-locality. Iwaka River, New Guinea.

Described from one female, collected February 1911 by A. F. R. Wollaston.

Type. British Museum (Natural History).

Genus POLYCLONUS, Kirby.

In 'Genera Insectorum,' fasc. xxix. 1905, p. 40, Konow places the genus *Polyclonus*, Kirby, as a synonym of *Ancylo-neura*, Cameron. This seems to the author to be wrong, and as very little is known concerning the genus the following notes, taken from specimens in the British Museum, and made in 1909, may be of value:—

"A female of *Polyclonus atratus*, Kirby (genotype), from Melbourne, Victoria, 'C. F. 8. 00, No. 1164,' proves the genus is a good one. It may be briefly described thus: Length 5 mm.; expanse 12.5 mm. Clypeus truncate; malar space very narrow, practically wanting; antennal furrows indistinct but complete; a distinct furrow from the anterior ocellus to between bases of antennae; head strongly granular; antennae wanting beyond 12th joint, each joint beyond the second with a ramus like *Pterygophorus*; scutum and scutellum shining, sparsely punctured; tarsal claws simple; venation like *Perrisia* (fig. 80, plate 39, Proc. U.S. Nat. Mus. vol. 29, 1906), except that the third cubital receives the second recurrent and the third cubital cell is longer than the second. Black; labrum, mandibles, tibiae, and tarsi pallid; wings hyaline, iridescent; venation black."

From these characters and others gained from an incomplete generic synopsis the author is of the opinion that the genus belongs to the tribe Eurini, where it is easily distinguished by the ramose antennae of both sexes.

Neocerys tasmanica, sp. n.

This new species is closely allied to *metallica*, but may be separated by narrower sheath, darker stigma, and shorter distance between the second recurrent and second intercubitus.

Female.—Length 5 mm. Antennal furrows complete to recurrent; middle fovea shallow, wedge-shaped; postocellar furrow wanting; post-ocellar line subequal with the ocellular line; antennae 13-jointed, the third joint but slightly longer than the fourth; scape but slightly longer than the pedicellum; sculpture of the head fine and close; stigma slightly angled at base, then regularly tapering to apex; second recurrent received by the third cubital cell half the length of the second intercubitus from the base of the cell; prescutum and scutum medianly finely granular and somewhat opaque; sides of the scutum and scutellum shining; mesepisternum with small rather close punctures; sheath

slightly concave above, rounded apically, and tapering to the rather narrow base. Blue-black, with a faint bronzy tinge to head; palpi, apices of anterior femora, and all of the tibiae rufo-ferruginous; wings dusky hyaline, venation (including stigma) dark brown.

Male.—Length 3 mm. The male assigned here agrees closely; the middle fovea is somewhat deeper and the apices of all the femora are pale; the lower margin of the stigma is pale, and the second recurrent joins the third cubital cell somewhat further from the base. Hypopygidium narrow and truncate apically.

Type-locality. Tasmania.

Described from one female (type) collected on the summit of Mt. Wellington, 1904, by A. M. Lea, and one male (allotype) from Eaglehawk Neck, S.E. Tasmania, Feb. 12–Mar. 3, 1913, collected by R. F. Turner.

Type and allotype. Collection British Museum (Natural History).

XLIII.—On some External Characters of Ruminant Artiodactyla.—Part V. *The Tragelaphinae*. By R. I. Pocock, F.R.S.

Subfamily *TRAGELAPHINÆ*.

The only fresh material available in 1910 for examination of the cutaneous glands of this group belonged to the genera *Tetraceros*, *Boselaphus*, and *Tragelaphus*. For the rest dependence had to be placed upon the inspection of dried skins and living examples, which yielded unsatisfactory results. Since that year additional material of those genera, as well as fresh examples of *Strepsiceros*, *Limnotragus*, and *Taurotragus*, have come into my hands, and these have enabled me to clear up some doubtful points.

GENUS *TETRACEROS*, Leach.

Tetraceros quadricornis, Blainv. (p. 921).

I have nothing to add to my description of the glands of this species published in 1910, except to say that an adult female had the glands of the false hoofs of the hind legs as

well developed as in the male. Their secretion had a decidedly pungent and unpleasantly musteline odour.

The *rhinarium* is well developed and "bovine." From the anterior aspect the upper margin is strongly convex and the area beneath the nostrils is mesially grooved and very wide—wider, in fact, than the area above these orifices—and visible to a considerable extent in profile view. From the dorsal side the anterior margin is convexly truncated, and the posterior margin is straight between the posterior angles of the nostrils, the hair of the nose not extending forwards beyond that line.

Genus *BOSELAPHUS*, Blainv.

Boselaphus tragacanthus, Pall. (p. 526).

In a male example the *preorbital gland* had a much shallower pit than in the female described in 1910, and was without definite lids. The gland itself, moreover, was not regularly heart-shaped, but was longer than thick and of irregular form.

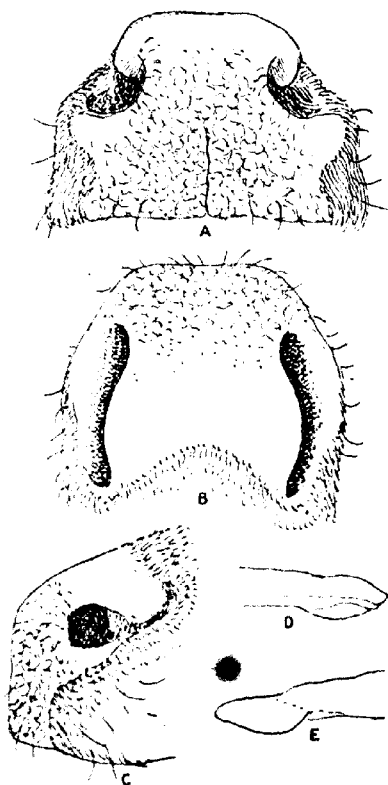
The *rhinarium* (fig. 1, A, B, C) is large and "bovine," closely resembling that of *Tetracerus*, but more protuberant in front, and, beneath the nostrils, laterally and with a wider intermarial septum. On its dorsal side the hair advances a little way between the nostrils, so that the posterior border of the rhinarium is concave.

In 1910 I briefly described the glandular nature of the skin between the false hoofs of the hind feet in the female. The same feature is present in the male where the skin between the widely separated false hoofs is clothed with longish hair, is very thick and glandular, and mesially folded. In the fore foot there is no trace of the gland, the false hoofs being larger and the hair restricted to the narrow area between them. This gland (fig. 3, B) on the hind foot of *Boselaphus* clearly represents an earlier stage of the evolution of the pair of pouch-like glands present in *Tetracerus*. The presence of similar glands in *Panotragus* and *Strepsiceros* (cf. *infra*) serves to link *Boselaphus* with the African Tragelaphines, and refutes, if refutation be needed, Ratn Meyer's claim that *Boselaphus* belongs to a different group.

Inguinal glands are absent and there are two pairs of *submammary*.

The *penis* (fig. 1, D, E) agrees, generally speaking, with the sketch and description published by Gerhardt (*op. cit.*

Fig. 1.



- A. Rhinarium of *Hoselaphus tragocamelus* from the front. $\times \frac{1}{2}$.
 B. The same from above.
 C. The same from below.
 D. The extremity of the penis of *H. tragocamelus* from below.
 E. The same from the left side.

p. 153). It ends in an elongated subovate portion defined by a shallow constriction. The urethral canal, however, reaches the extremity of this, lying rather upon its right than on its left side.

Genus TRAGELAPHUS, Blainv.

Tragelaphus scriptus, Pall., and its subspecies (p. 929).

The only specialized cutaneous glands which occur in this species and its numerous affiliated forms, of which *sylvaticus* is the commonest in our Zoological Gardens, are the *inguinal*s, which, according to my examination of a large number of specimens, are invariably present as a pair of small pouches lying far out in front of the four teats, the orifice being in the fold between the thigh and the abdomen. The only other genera of Tragelaphines which possess these are *Limnotragus* and *Strepsiceros*. As in all the African Tragelaphines *preorbital* and *interdigital pedal glands* are absent. The glands between the false hoofs of the hind legs, found in *Tetraceros*, *Boselaphus*, *Strepsiceros*, and *Taurotragus* are also absent.

The *rhinarium* is variable with respect to the width of the area between the edge of the lower lip and the nostrils. Sometimes there is a definite narrow philtrum as in *Strepsiceros* and adult examples of *Taurotragus*, but not infrequently the hair of the upper lip does not encroach so far towards the middle line, leaving a broader irregularly shaped naked space. This variation may be a matter of age, or it may prove to have a racial significance. Otherwise the rhinarium seems to resemble that of *Taurotragus* and *Strepsiceros*, except that the posterior edge between the angles of the nostrils is straight from side to side.

The *penis*, as described and figured by Lönnberg (Ark. Zool. Stockholm, (5) v. no. 10, p. 7, fig. 6, 1909), is distally attenuated, with a terminal sigmoid flexure, the urethral canal not being prolonged beyond the tip of the glans penis.

Genus LIMNOTRAGUS, Sel. & Poc.*

Limnotragus spekei, Sel. (p. 930).

Examples of the two races *gratus* and *selousi* resemble

* Although this genus is of very doubtful value, it may be explained that, at the request of Mr. Thomas, who in 1888 was compelled by ill-health to abandon temporarily all zoological work, I took his place in the completion of vol. iv. of the 'Book of Antelopes.' Strictly speaking, therefore, although the matter is of no great moment, this generic name should be ascribed to Selater and myself.

Tragelaphus with respect to the cutaneous glands, the inguinals being present and similarly placed and the glands between the false hoofs absent.

The *rhinacrum* also is like that of *Tragelaphus*, except that the area between the nostrils and the edge of the lower lip is usually at all events wider. It is as wide as the inter-narial septum in a specimen of *selousi* and wider in an example of *gratus*. I have never seen it narrower, as is sometimes the case in *Tragelaphus*. *Limnotragus* appears merely to differ from *Tragelaphus* in the length of the hairs and the nakedness of the posterior surface of the pastern and fetlock. But, as Meinertzhagen has pointed out (P. Z. S., 1916, i. p. 377), there is sometimes a patch of hair in the middle of the pastern between the false hoofs and the hoofs themselves. But in two examples which came together from the Congo to the Zoological Gardens the feet of the male were naked behind, while those of the female had the patch in question.

GENUS STREPSICEROS, H. Smith.

Strepsiceros strepsiceros, Pall. (p. 931).

The fresh carcase of a hornless male, three or four months old, from South Africa, is all the material of this species I have seen.

The *rhinacrum* has a narrow grooved philtrum and the hair upon the upperside of the nose spreads forwards some distance between the nostrils. Otherwise the rhinacrum resembles that of *Tragelaphus*.

There is no trace of *preorbital gland*.

Inguinal glands also are absent. Possibly their absence in this specimen was due to immaturity, since both Oann and Ogilby agree as to their presence in the species. When present they probably resemble in size and position those of *S. imberbis*, of *Tragelaphus*, and *Limnotragus*.

Pedal glands of the interdigital type are absent, but upon the hind feet there are glands associated with the widely separated false hoofs as in *Faurotragus*. On the inner side of each false hoof there is a tuze of long black hair growing from a glandular thickening of the skin, the secretion of which is discharged amongst the roots of the hairs in a narrow hairless cleft between the thickening and the false hoof. The skin of the middle of the area between the false hoofs is clothed with short hair and is thin and not specially glandular.

dular. On the fore feet no such fringes exist, the false hoofs being small, close together, and overlapping*.

Strepsiceros inkerbis, Blyth.

Of this species I have seen one fresh specimen, an immature castrated male from Somaliland, and the feet and inguinal area of an adult female from British East Africa, kindly brought home for me by Mr. F. C. Selous.

These specimens resemble in nearly every particular the example of *S. strepsiceros*, above described. The undersides of the *chinnama*, however, was not overgrown with hair to quite the same extent, and there was a single pair of inguinal glands, each consisting of a narrow sack 2 inches deep, with a small circular orifice, and lying far out in advance of the two pairs of mammae, as in *Taurotragus* and *Limnolagus*.

The glands close to the false hoofs (fig. 3, D) of the hind feet were exactly as described in *S. strepsiceros*, and on the fore feet the false hoofs were smaller than on the hind feet and separated by a narrow strip of naked skin, horny in one of the specimens.

The penis of the castrated male was very small and simple, with a bluntly rounded termination. The urethral canal was not produced beyond the end of the glands.

Strepsiceros has hitherto been distinguished from *Taurotragus* merely by small differences in the horns of very little systematic value. Particularly satisfactory, therefore, is the discovery of the difference between the two genera supplied by the glands adjoining the posterior false hoofs.

Genus TAUROTRAGUS, Wagn.

Taurotragus oryx, Pail. (p. 182).

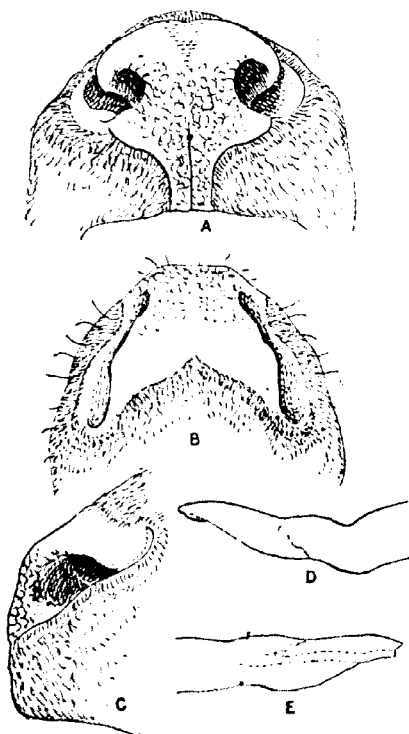
To the description of the cutaneous glands of this species published in 1910 I have to make one important addition. This is the presence of glands close to the false hoofs of the hind legs, precisely resembling those described above under *Strepsiceros*. These are as well developed in a calf one day old as in the adult, and they are the only specialized cutaneous glands present in the genus, so far as my observations go (fig. 3, A, C). I have never succeeded in finding a trace of the *periorbital gland* described by Mr. W. L. Slater, and am compelled to disbelieve in its existence.

The *chinnama* (fig. 2, A, B, C) in the adult is not "bovine."

* *Ngabungwa* resembles *Strepsiceros* and differs from *Taurotragus* in possessing the glandular fringes by the false hoofs of the hind legs.

like that of *Boselaphus*. It is much less protuberant both in front of and beneath the nostrils laterally, and the septum between the expanded nostrils is narrower. Beneath the nostrils in front the rhinarium spreads somewhat to right

Fig. 2.

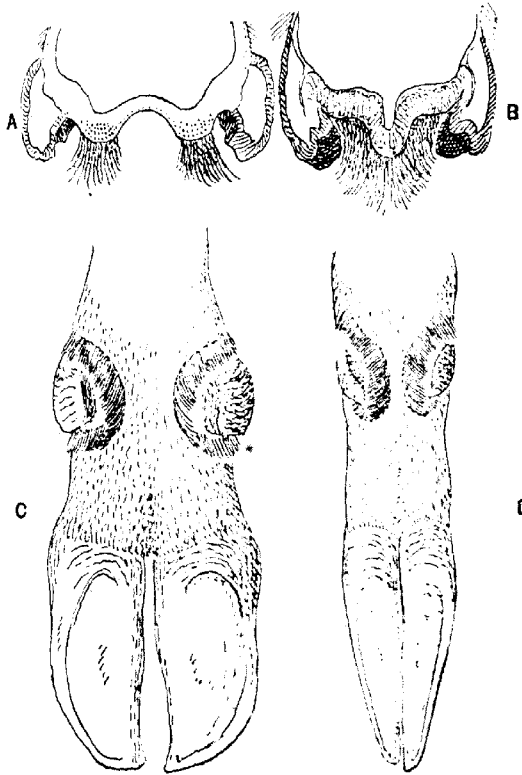


- A. Rhinarium of *Urotragus oryx* from the front.
- B. The same from above.
- C. The same from the side.
- D. Extent of the penis of *U. oryx* from the left side.
- E. The same from below.

and left, being nearly as broad here as just above the nostrils; but beneath this it rapidly narrows to form a mesially grooved philtrum which is about as wide as half the internarial septum. The upper edge from the front view is

lightly convex; the posterior edge from above is lightly concave, the hairs of the upper side of the nose spreading

Fig. 3.



A. Transverse section through the false hoofs and glands of the hind foot of *Taurotragus oryx*.

B. The same of *Boelaphus tragocamelus*.

C. Lower view of hind foot of *Taurotragus oryx*, showing the glandular fringes encircling the false hoofs on the inner side.

D. The same of *Strepsiceros imberbis*.

forwards a little in advance of the posterior notch of the nostrils.

The width of the philtrum appears to vary sometimes

with age in an interesting manner. Thus in a calf one day old it is wider than in the adult, being about three-fourths the width of the internarial septum, whereas in a foetus about three months developed the naked area beneath the nostrils is very broad, broader even than in the adult *Boselaphus*, giving the rhinarium a strictly bovine appearance. This suggests that the bovine type of rhinarium is the primitive type in the Ruminantia⁸.

As I recorded in 1910, *inguinal glands* and *interdigital pedal glands* are absent, but the hind feet possess glandular thickenings of the skin surmounted by a fringe of black hairs (fig. 3, A, C) precisely as in *Strepsiceros*.

The *penis* (fig. 2, D, E) of an old male has an elongated, undulating, attenuated terminal portion, much longer than in *Boselaphus*, and, as in that genus and others belonging to the Tragelaphinae in which this organ has been described, the urethral canal is not produced beyond the tip of the glans.

The points of interest connected with the characters above enumerated may be summarized as follows:—

(1) Preorbital gland present	<i>Tetraceros, Boselaphus,</i>
" " absent	<i>Tragelaphus (Alces),</i> <i>Tragus, Nyala, Strepsiceros, Taurotragus.</i>
(2) Inguinal glands present	<i>Tragelaphus (Alces),</i> <i>Tragus, Strepsiceros</i> (always in the latter)
" " absent	<i>Tetraceros, Boselaphus,</i> <i>Taurotragus.</i>
(3) Glands between posterior false hoofs absent.	<i>Tragelaphus (Alces),</i> <i>Tragus.</i>
" " " present.	
Consisting of definite pockets within	
false hoofs	<i>Tetraceros.</i>
Consisting of a thickening of the skin	
only.	
Thickened skin extending across fet-	
lock	<i>Boselaphus.</i>
Thickened skin restricted to area close	
to false hoofs and surmounted by	
fringe of hairs	<i>Nyala, Strepsiceros,</i> <i>Taurotragus.</i>

* It may be added that in the foetal specimen above alluded to the facial vibrissae were well developed, consisting of short scattered mystacial and submentals, a row of supercillaries and suboculars, an upper and a lower genal tuft arising from the white spots on the cheek and interramals. It is singular that the Artiodactyla and the Carnivora are the only orders of mammals known to me which possess as a primitive character two genal tufts—an upper and a lower—on each cheek.

